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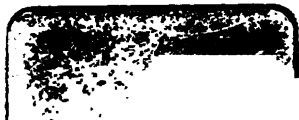
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1891.

*A CRITICAL REVIEW FOR PRACTITIONERS OF
MEDICINE AND SURGERY.*

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against chill, and the maintenance of absolute rest, mental and bodily. Chills favour internal congestions and the production of the rheumatic virus; exertion of all kinds increases the force and frequency of the heart's action, and thus causes increased flow of blood to and increased shock and friction of the valves.

Rest is equally necessary when endocarditis is established. Mental rest must likewise be enforced, for excitement quickens cardiac action. The patient must be kept in bed, or on a couch, long after all signs of active disease have subsided. The diet, for the same reason, must be easily digestible, simple, and unstimulating. A full meal of solid food excites the circulation; and nourishment should, therefore, be limited to milk, beef-tea, and light farinaceous preparations. Unless demanded by cardiac failure, alcoholic stimulants should be avoided. In rheumatic cases, salicylate of sodium should not be given if endocarditis has already arisen. It appears to have no power in controlling endocarditis, and its depressing action on the heart renders it injurious. If articular rheumatism be present, salicin may be given in doses of 5 to 7 grains, along with citrate of sodium. The treatment of rheumatism by alkalies appears to give more favourable results than any other, so far as cardiac inflammation is concerned. When the heart is rapid and tumultuous, yet feeble, 3 to 5 drops of tincture of digitalis may be given every four hours. If digitalis do not agree, opium will give relief. Strophanthus is also useful, but it is inferior to digitalis and to opium in the rapid action and heart-failure of endocarditis. In septic endocarditis an exception must be made with regard to stimulants. Alcohol is so good an antiseptic, that its influence in this respect probably counterbalances any evils which may accrue from its effect on the circulation in the valves.

II.—THE ESTABLISHMENT AND MAINTENANCE OF COMPENSATION.

Dr. Sansom (*Cyclopædia of the Diseases of Children*, 1889) recommends massage of the chest, gently performed, as very valuable in the stage of returning compensation. Great care should be taken that the child, when able to run about, is warmly clad with a woollen material next the skin. This should be uncoloured, never dyed with the aniline colours so much in use. Iron, in the form of tincture of the perchloride, or syrup of the phosphate, or hypophosphite, is very useful, and can with advantage in many cases be combined with cod-liver oil. In certain cases arsenic is

better than iron, notably in those attended with much nervous perturbation, and in some cases small doses of tincture of nuxvomica or strychnine may be added with advantage.

Dr. Mitchell Bruce (*Cyclopædia of the Diseases of Children*, 1889) states that at two periods in the course of disease of the heart in children the question arises as to the proper treatment of simple hypertrophy and of hypertrophy with compensatory dilatation. First, after convalescence from acute endocarditis or pericarditis, we have to ask ourselves anxiously, What measures will encourage the development of compensatory hypertrophy of the heart? Secondly, when compensation has been established, and the child is free from symptoms, we have to consider how we can maintain the conservative enlargement. The treatment that has to be followed at these two periods is practically the same. It is partly of a positive kind, i.e., it consists in actively carrying out certain rules of life and methods of therapeutics; partly it is negative, i.e., it includes the faithful avoidance of certain unfavourable circumstances. A sufficient supply of healthy blood in the coronaries must be insured by perfect hygiene, including feeding and attention to the bowels and skin, and by means of iron or arsenic. The nervous influences around the child must be wholesome, the question of education being constantly kept before the mind. Exercise must be definitely ordered. (See page 15.) The incidence of acute disease, particularly rheumatism, must, if possible, be prevented; and this is often exceedingly obscure or "latent" in young subjects.

Dr. Joseph M. Patton (*The Medical Record*, Dec. 28, 1889) maintains that there are symptoms occurring during the period of compensation—the hypersystolic state of Fernet and Huchard—which demand relief. These symptoms are common alike to aortic regurgitation and stenosis; but are generally more marked in the former, because of the dilatation of the aorta, which obtains through the larger volume of blood discharged, and the greater force displayed, because of the immense hypertrophy which develops in regurgitation. For the paroxysmal dyspnoea and cardiac asthma, bromide of potassium is useful; cicutine has also been recommended. In the hypersystolic condition, with increased vascular tension, aconite is a valuable remedy; 2 drops of the tincture every three or four hours, followed by 1 drop three or four times a day, will give marked results in many instances.

[The condition referred to by Dr. Patton appears to be little regarded in England. Excessive hypertrophy cannot be common. Attacks of distress, palpitation, and cardiac dyspnoea, occurring

during the establishment of compensation after endocarditis, are quite familiar, but are usually referable to passing excitement, exertion, or flatulent dyspepsia, that is, temporary cardiac failure, not over-activity; and the proper treatment is obvious.]

III. — FAILURE OF COMPENSATION. CARDIAC DROPSY.

THE SELECTION AND EMPLOYMENT OF CARDIAC TONICS AND DIURETICS.

Introduction.

This year the literature of the therapeutics of disease of the heart is unusually rich in the number of methods suggested for the employment of established remedies for cardiac failure, and in the details of the management and treatment generally of this class of patients. Time, which tries all things, has shown the comparative value of the different cardiac tonics; and, as the following extracts will show, the many opportunities of establishing this point have not been lost. No new drug of any importance or special promise has been introduced.

Pathological indications.

A statement which, should it be confirmed, promises to have considerable influence on the therapeutics of cardiac disease, has been made by Dr. E. Bomberg, of Leipzig, with respect to the innervation of the heart (*Centralblt. f. klin. Med.*, No. 27, p. 66, Beilage, 1890). From a long series of observations on the condition of the heart in fever, and on the development of the nerves, ganglia, and musculature of the heart in the embryo, he concludes that the myocardium itself, not the ganglia, must be regarded as the automatic motor of the circulation. The ganglia he believes to be sensory in function, probably transmitting "unconscious impressions" to the central nervous system, to be reflected to the heart itself or to the vessels.

It is obvious that if this view be correct, the action of "cardiac" drugs is no longer to be referred, as a matter of course, to an influence on the cardiac ganglia. The myocardium becomes of much greater importance than before. Further, there is much reason to believe that careful investigation of the cardiac muscle *post mortem* will reveal the nature of pathological conditions of the heart more frequently than is at present suspected.

In the discussion that followed the reading of the paper, Professor Basch, of Vienna a recognised authority on the physiology

and pathology of the circulation, declared his adhesion to the view that the automatic action of the heart does not originate in the ganglia.

The selection and employment of remedies.

Professor Nothnagel, of Vienna (*Centralblt. f. klin. Med.*, No. 36, 1889), may be first quoted, as he is one of the greatest living authorities on this subject. In his clinical observations upon some cases of heart disease, he thus refers to the comparative value of the different drugs and methods in ordinary use, other than digitalis:—The remedies inferior to digitalis are: Convallaria; adonis vernalis; squill; sodio-salicylate of caffeine, 3 to 6 grains, five times daily—a diuretic to be recommended on the days when digitalis is not administered; absolute milk diet; and tincture of strophanthus, 8 drops, twice or thrice daily for fourteen days. In the last resort, as exerting a direct influence on the kidneys, calomel may be given in doses of 3 grains four times a day for three or four days, with the usual precautions. After the administration of calomel, diuresis may arise on the fourth or fifth day—often only after a second attempt—from 300 to 3,000, or even beyond 7,000 ccm. Dropsy disappears for from four to eight weeks, when the remedy must be resumed—this occurring as many as eight times in the course of a year. Powerful thermal carbonic-acid baths, which excite the heart, must be avoided. Carlsbad may be used with great caution when indicated on other grounds. Chalybeate waters are contra-indicated in heart disease with cyanosis. In the use of the baths which have of late been recommended, it is not the baths, but the massage and dietetic regimen, that are beneficial. As long as compensation is preserved, cold-water treatment is admissible, avoiding too low temperatures (57° F. and under) and too severe measures. For mental anxiety, restlessness, and neuralgic attacks, morphine is to be administered subcutaneously ($\frac{1}{4}$ gr. to $\frac{1}{2}$ gr.), also as a hypnotic; but only when paraldehyde, amylene hydrate, sulphonal, and chloral have failed.

Professor H. C. Wood (*Medical News*, February, 1890), in a lecture delivered at the University of Pennsylvania, presents a somewhat novel view of the action of digitalis on the circulation. It would appear, he says, in view of its effects in heart disease, that this drug does more than simply stimulate the heart: that it ought to be classed as a cardiac tonic and food rather than a cardiac stimulant. Under these circumstances it is easy to see how digitalis does good. A heart that is overworked from valvular disease is a heart that is starving itself, because failure in circulation is felt in the cardiac walls more severely even than in

the periphery of the body—it is an over-worked and under-fed organ. If now we restore that heart to a normal action temporarily by digitalis, and the current rushes out through the aorta, there is a great mass of it to nourish the cardiac walls. When the heart contracts with a spasm, it empties out all the juices from the myocardium, and makes a clear open space for the blood to flow in and feed it. The temporary beneficial effects of digitalis in such cases are due to its restoring the balance of the circulation; its permanent good effects to the rest and food it brings the heart itself. But digitalis goes beyond this. Dr. Gaskell has shown that the pneumogastric nerve is a trophic nerve of the heart: that during the inhibitory period there is both rest from functional activity and activity in structural change. During cardiac systole the heart puts forth energy and destroys its own structure; during diastole it not only rests from functional activity, but is engaged in building up its own structure. Tersely, then, systole is destructive to the heart, diastole is constructive to the heart. A long period of diastole furnishes an increase in the structural activities of the heart. Thus there comes to the heart not only cessation from worry, not only over-feeding instead of under-feeding, but also an intensely stimulated structural activity; and in such circumstances it is no wonder that the effect of digitalis in cardiac disease is so often permanent.

In a lucidly-written article from the pen of the Editor (*The Therapeutic Gazette*, p. 479, vol. vi., No. 7, 1890) attention is especially directed to the work done by Gauthier, which he published in the *Wiener med. Blätter*. The administration of digitalis in pill or powder form is well known to be apt to induce diarrhœa or vomiting. An infusion made by macerating the digitalis leaves is the best form for its internal use, and it is this preparation which gives the most prolonged and intense action on the heart, and which is most efficacious in producing diuresis. The infusion should be given in gradually decreasing doses. Digitalin is not a constant preparation, and does not possess all the properties of the digitalis leaves. Where an extremely rapid action is desired, however, the crystallised digitalin will be of use, although ordinarily its action is too intense, and therefore dangerous, whilst its subcutaneous employment is extremely painful and apt to lead to formation of abscesses. Convallaria in like manner is also best employed in the form of a fresh maceration—8 to 10 parts in 1,000 parts of water, to which syrup may be added. Its active principle, convallamarin, may be employed in doses of $\frac{1}{2}$ to $\frac{3}{4}$ or even 1 grain. Strophanthus acts best as the tincture, in five-drop doses three times daily, although

ten to twenty drops may be given once or twice in the twenty-four hours in a single dose. Adonis likewise may be employed in the form of an infusion or decoction, or its active principle, adonidin, may be given. The infusion seems to be inconstant in its activity, and both the watery preparations have an extremely bitter taste which must be covered with syrup. Adonidin may be given in the quantity of from $\frac{1}{8}$ to $\frac{1}{4}$ grain in twenty-four hours. Its toxic action is ten times stronger than that of digitalis. Caffeine is also a reliable remedy, provided it is given in sufficient doses, 15 to 30 grains being ordinarily required. This dose should not, however, be exceeded without great care, as in larger quantities it is not free from danger. Caffeine salts, owing to their sparing solubility, are not suitable for subcutaneous injections, although the double salts—the benzoate of sodium and caffeine—is an exceedingly valuable preparation. We may either use the broom in the form of an infusion or decoction of the plant, or its active principle, sparteine, may be employed. The sulphate of sparteine is especially valuable for its action on the heart in doses of from $\frac{3}{4}$ to 4 grains, whilst the infusion is possessed of marked diuretic properties.

Herr Fürbringer (*The Medical Press*, April 23, 1890), in discussing the treatment of cardiac and renal dropsy, at a meeting of the Berlin Medical Society, remarked that there is but little agreement of opinion as to which of the methods of removing dropsical accumulation should first be tried—by the sweat-glands, kidneys, intestines, or surgical interference. In cardiac dropsy, however, it is certain that diuretics occupy the front rank. The sovereign diuretic has been and still is digitalis; it is also of service in renal dropsy—even in glomerulo-nephritis, for in both of these conditions cardiac debility often plays a part. When digitalis, administered in the form either of infusion, powder, or pill, fails to benefit, excellent results are obtained with acetum digitalis in combination with pepsin wine. Dr. Fürbringer does not know a single anatomical contra-indication to the use of digitalis. No other remedy approaches it: adonis, convallamarin, blatta, and sparteine are superfluous, or they too often fail, and their employment frequently produces unpleasant concomitant effects. Strophanthus, caffeine, theobromine, calomel, and the group of saline diuretics deserve a certain amount of commendation. He has nothing good to say of lactose. The action of caffeine on the central nervous system is disagreeable, but this may be avoided by the use of sodio-salicylate of theobromine ("diuretin") in doses of 3 to 5 grammes daily. Sometimes no single drug acts, and it is then useful to try all in turn in

combination with acetate of potassium. For the employment of drastic purgatives the patient should be strong and have a good pulse.

Professor H. C. Wood (*The Medical News*, February, 1890) impresses upon us a very important clinical fact which is apt to be forgotten—that in old cases of heart disease, most wonderful therapeutic results may be attained by the inordinate use, so to speak, of digitalis. Digitalis steadies and builds up the hearts of such cases, brings them into that condition in which they are able to utilise the last grain of force that remains in the storehouse of their power, and makes use of that force until, at last, it is expended.

Dr. Henry M. Field (*The Therapeutic Gazette*, January, 1890; and *The Medical News*, February, 1890) expresses a very different view with respect to the doses of digitalis usually employed. He is convinced by long experience that for cardiac conditions demanding digitalis, whether neurotic or structural, five drops of the tincture three times a day are usually sufficient. Press the remedy further, and evidence will be presented of a tetanised heart, although perhaps in slight degree. The chief experience of this writer has been in cases of weak and irritable hearts, caused, it may be, by various excesses in adults who have long been overburdened by business responsibilities. Few results are so satisfactory as those of digitalis in such conditions. But success depends upon reform in the fault which produced the cardiac difficulty, and upon systematic regular ingestion of the tincture in doses of not more than five drops three times a day for months.

Digitalin.

A discussion took place at the Société de Thérapeutique on the relative advantages of the various preparations of digitalis. M. Huchard (*The Medical Record*, October 11, 1890) stated that he was in the habit of prescribing digitalin in one massive dose, that is to say, at one time for one day only, such dose being fifty drops of a solution of 1:1000 of crystallised digitalin. He thus follows the example of Professor Potain, who does not prescribe the medicine in any other form. Under the influence of this medication diuresis is promptly augmented, sometimes at the end of the first day, often from the second day; the medium quantity of urine is from three to four litres per day, and it has amounted to six and seven litres. Such remarkable results are in complete contradiction with those of other authors, who regard digitalin as possessing diuretic properties far inferior to infusions of digitalis.

Basing his argument on certain investigations into the size of the left ventricle in mitral stenosis, Dr. Lenhartz (*Centrblt. f. klin. Med.*, No. 27, Beilage, 1890) ingeniously indicates the value in this particular form of valvular disease of the slowing influence of digitalis on the heart. It is obvious that the securing of a slower action, i.e., a longer diastole, must be peculiarly important when the free flow of blood from auricle to ventricle is interfered with. This is precisely the action of digitalis and its allies, whilst they at the same time increase the vigour of both ventricular walls and raise the arterial tone.

The Editor (*Boston Med. and Surg. Journ.*, July 31, 1890), in a leading article on the insanity of cardiac disease, says that in its treatment great reliance must be placed on the heart tonics, especially on digitalis, frequently administered in small doses; large doses rather aggravate than arrest the delirium. The utility of hypodermic injections of sparteine and morphine is highly spoken of by M. Bull (*Médecine Moderne*, p. 577, 1890). These remedies have a very rapid action in arousing and sustaining a fatigued and flagging heart. We also find a precious auxiliary in the alkaline bromides owing to their sedative action on the nervous system. Repose and isolation are indispensable; and sometimes a sea voyage will give just the rest and freedom from care and business that are so much needed.

Strophanthus.

Dr. Bucquoy (*Brit. Med. Journ.*, June, 1890) believes that strophanthus gives a characteristic sphygmographic tracing. The ascent of the curve reaches a higher level; the line of descent falls more abruptly. After two years of work with strophanthus, representing an experience of several hundred cases, he says that the indication for this drug is in every case ventricular incompetence. The increased force of the ventricular systole caused by the drug is accompanied by a diminution in the frequency of the pulse, and by an attempt at regulation; but in many cases the pulse remains irregular. The action of strophanthus is best exhibited in cases of aortic disease, and for the reason that an increased ventricular beat must become more manifest when the whole force of the stroke issues through the aortic opening than when, through mitral incompetence, only part of this stroke reaches the pulse; moreover, the dilatation and hypertrophy of the heart in aortic disease being greater than in mitral disease, the former condition is better adapted to show increased force of action. Dr. Bucquoy holds that strophanthus does not cause contraction of the arterioles, and that its action is less persistent than that of digitalis. In cardiac failure the peculiar advantages

in the hypogastrium. Should there be a rupture the escape through the rent into the general peritoneal cavity, distend the entire belly."

Where the conditions are favourable for applying such it may prove of service before proceeding with laparotomy. often happens, however, that the degree and nature of the disease by intestinal distension. In these circumstances the could hardly be relied upon, and would at least require supplemented by more direct evidence before action taken. The suggestion, however, is a practical one, and be of value in connection with an injury where life is entirely depend upon an early diagnosis being made.

17. Abscess of the bladder treated by suprapubic incision.

Mr. Barry Foran (*Med. Society of London*), narrates the particulars of a case where a patient, suffering from incontinence of urine, and loss of sexual power, was treated in this way with complete success. **Mr. Reginald Harrison** at the same time mentions a similar case in which **Mr. Chant** had advised a trial suprapubic incision. He had therefore suspected the existence of an abscess of the bladder, and had therefore advised a trial suprapubic incision. He had therefore suspected the existence of an abscess of the bladder, and had therefore advised a trial suprapubic incision.

This is a method of treatment which has been used in cases coming under this category.

18. Atropine in catarrh of the bladder.

Dr. J. J. Jones (*Association of Physicians*) narrates of an extended trial of this drug. He commenced by giving atropine in one dose of a grain, but in one case it was given in two doses of eight grains. He found that the physiological dose of atropine was one grain, and that the physiological dose of atropine was one grain. He found that the physiological dose of atropine was one grain, and that the physiological dose of atropine was one grain.

19. Salol in genito-urinary diseases.

Dr. J. G. Mumford (*Boston Med. and Surg. Journ.*, June 19, 1890) reports a series of cases where salol was used. In the first, 10 grains of salol, taken three times a day for a week, effectually prepared a susceptible patient to undergo litholopaxy without the occurrence of any unpleasant after-effects, though previously mere examination of the bladder was enough to provoke catheter chill. The fourth case was that of a delicate man, aged 43, the subject of gleet and stricture. Catheter chill following introduction of the sound; salol in doses of $2\frac{1}{2}$ grains thrice daily was given, and thenceforward the temperature kept below 99° . The fifth case was one of stricture and perineal fistula, in which high fever and delirium were completely controlled by salol, 10 grains every eight hours. In the remaining four cases equally satisfactory results in combating the chill and fever produced by catheterisation were obtained by the employment of the drug, the quantity given varying in different circumstances from 2 to 5 or 10 grains per dose.

Like quinine and boric acid, salol seems to possess the power of sterilising the urine, and in averting urinary fever and in assisting to remove pus from the urine has been found useful by many observers.

20. External urethrotomy and retrograde catheterism.

Dr. Delefosse (*Annales des Malad. Gén.-Urinaires*, Sept., 1889) advocates this practice in certain conditions. Having opened the bladder by suprapubic incision, he feels for the orifice of the urethra with the left index finger, and passes a bougie as far as the external or penile wound (previously made), when it is attached to the end of an instrument introduced from the meatus. He concludes that (1) retrograde catheterism should be adopted more frequently in cases of impassable stricture, combined with external urethrotomy; (2) retrograde catheterism can be employed for ruptured urethra. Dr. Delefosse appears to consider that this is a method of treatment deserving of further attention.

Mr. Furneaux Jordan was, I believe, the first to take advantage of the dilated or funnel-shaped condition of the urethra which invariably exists on the bladder side of a stricture. I should hardly, however, think of availing myself of this method of attacking a stricture unless, in addition, there was a very good reason for submitting the bladder to drainage for some time after the urgency of a stricture, which had proved unmanageable by instruments from the front, had been relieved. If in these circumstances the suprapubic method of drainage seemed to be

Dr. Laborde (*Boston Med. and Surg. Journ.*, April 10, 1890) read a note before the Academy of Medicine, Paris, on the comparative action of the iodides of potassium and sodium on the heart. Along with Professor Germain Sée, he regards the potassium salt as the true medicament of the heart, and protests against the substitution for it of the sodium salt. He maintains that, far from being a depressor of the heart, iodide of potassium adds considerably to the power of that organ, whereas the effects of the sodium salt are almost *nil*. Physiological experimentation should always serve as a guide to the therapist; and one should not infer from the isomerism of two substances their identity of action, whether physiological or therapeutical.

Cactus grandiflorus.

Dr. Orlando Jones (*Brit. Med. Journ.*, January, 1890) publishes his experience of *cactus grandiflorus*, which he regards as likely to prove a useful adjunct to our resources, especially in asthenic conditions of the heart. (See "Year-Book of Treatment" for 1890, p. 9.) *Digitalis*, *strophanthus*, and *convallaria* are not always reliable in the varied conditions of the heart with which we daily meet. The action of *digitalis* is not infrequently disappointinging when we are dealing with a feeble heart, especially if that feebleness is excessive and of long duration. In such instances *cactus grandiflorus* may fill a gap where other remedies appear to be lacking. The action of this remedy seems to be the very opposite of that of *digitalis*; that is, in the final stage it strengthens the heart.

Coronille.

Drs. Spillman and Haushalter, of Nancy, publish (*Revue de Thérap.*, and *Dubl. Journ. Med. Sci.*, March, 1890) their conclusions respecting the therapeutic action of coronille, a leguminous plant hitherto but little used in medicine. These investigators found coronille to be a valuable cardiac tonic, its good effects being quickly produced. The power and volume of the pulse was increased, oedema lessened, and diuresis increased. Coronille is unsuitable in cardiac degeneration, but is suitable in the class of cases that derive benefit from *digitalis*. In some cases the medicinal use of the drug is attended with vomiting and diarrhoea.

Nitroglycerine.

Dr. E. P. Brewer (*The Medical Standard*, Chicago, October, 1890, abstracted from *The Therapeutic Analyst*) considers nitroglycerine a true emergency medicine, non-irritating, agreeable, as rapidly absorbed from the tongue as by subcutaneous injection, and a most potent and persistent heart stimulant. The dose and interval of administration have always to be regulated by the

effect which the practitioner attains. It is especially remedial in those cases in which the flow of the blood-current has been impeded, either by some anatomical changes in the lung tissues, as pneumonia, or by a spasm of the arterioles, as in ergot poisoning or uræmia. Here the action of nitroglycerine is remedial by increasing the heart's power and by dilating the capillary blood-vessels. This twofold action reduces the expenditure of force by reducing the resistance to the flow of the blood, and at the same time imparts an increased velocity to the blood-current. As a sequence, the blood flows more freely, becoming better aerated, and reaches the tissues in a better condition for nutrition and resuscitation. The heart itself is quick to react to the favourable change and rapidly regains a more normal strength and rhythm. A common form of heart-failure, in which nitroglycerine is invaluable, occurs in robust individuals in middle life, who after some unusual exertion fall unconscious and become almost pulseless. Such patients are usually portly, inactive and gouty, and may have freely indulged in alcoholic liquors. The usual plan of treatment of such cases by alcohol, digitalis, ammonia, strychnine, or atropine, is futile, not only because of its being slow in action, but because many of the remedies tend to reproduce the arterial tension which was the immediate cause of the heart failure. Nitroglycerine is, however, the remedy *par excellence*, first because it strengthens the heart to bear the burden, secondly because it reduces the burden. By its use a rapidly failing and faltering heart can be changed to a better action and rhythm.

IV.—CHRONIC CARDIAC DISEASE:

EXERCISE AS A THERAPEUTIC AGENT; MASSAGE OF THE HEART.

Several attempts have been made during the year to formulate more definitely than before the proper management of cardiac cases as regards exercise. Professor Oertel has introduced a new method of cardiac exercise, in the form of massage of the heart; but this, like his older method of hill-climbing, with its champions and its detractors respectively, will probably remain a "system" of treatment, for employment in exceptional cases. The practical question which has to be answered in all cases of disease of the heart, particularly those free from symptoms, is of daily—not occasional or exceptional—application. It is this—How much exercise or exertion can be taken with safety and advantage in the ordinary routine of life, whether by the man at

work or by the boy at play? The following extracts present replies to this inquiry:—

Dr. Alfred L. Loomis (*The Medical News*, November, 1889) takes up the subject of physical exercise as a therapeutic agent in diseases of the heart. Our clinical experience is that one case of heart disease is benefited by rest, another by exercise; and the important question to be decided by the practitioner is, which changes in the heart render exercise dangerous, which demand rest? Increased stimulation of the healthy cardiac muscle results in hypertrophy; on the other hand, if the vitality of the organism is below par, and the heart-muscle imperfectly nourished or diseased, the walls of the heart yield to the intra-ventricular blood-pressure, and dilatation is the result. Whenever, therefore, there is dilatation of the heart-cavities with weakened heart-walls from any cause, physical exercise is contra-indicated, whether valvular lesions exist or not.

With reference to the different forms of valvular diseases, Dr. Loomis maintains that as long as signs of heart insufficiency are still absent, there is no form of chronic valvular lesion that absolutely contra-indicates physical exercise, unless it is associated either with hypertrophy or dilatation. In that event the question of exercise or rest is to be determined, not so much by the condition of the heart, as by the age, habits, and general nutrition of the individual. Stenosis or valvular insufficiency after fifty years of age is a very different affair from the same condition at twenty or thirty. Chronic alcoholism and the evidences of general fibrosis render a heart crippled by valvular lesions far less able to resist the strain of physical exercise than that of a healthy man. In mitral stenosis, muscular exertion, especially such as increases intra-ventricular tension, and causes temporary interference with respiration, favours weakness of the walls of the ventricles and consequent dilatation of their cavities. In mitral insufficiency, if there be a defective, irregular, or uncomfortable action of the heart, rest must be insisted upon until the heart regains its rhythmical power; whereupon gentle exercise is useful in improving general nutrition, relieving the system of excrementitious products, and furnishing a more abundant supply of oxygen.

Before the period of ventricular incompetency is reached in aortic stenosis and regurgitation, more exercise can safely be indulged in, according to Dr. Loomis, than in mitral disease. Patients with aortic valvular disease should lead active lives out-of-doors, and may indulge in any exercise which does not involve strain of the heart, unless the valvular lesions are associated with atheroma of the vessels, in which case the individual should lead

a quiet life. The indications for rest or exercise in this class of cases are determined by the character of the murmur, the integrity of the heart-muscle, the extent of the ventricular dilatation, and the condition of the arterial walls. If the murmur is short and gushing, the cardiac rhythm easily disturbed, the left ventricular area much increased, the cardiac impulse diffused, and the age of the patient, his habits, and his hereditary tendencies such as to render it probable that extensive arterial degeneration exists, active physical exercise becomes dangerous, and the effects of even moderate exercise must be closely watched.

Dr. Sansom (*Cyclop. of the Dis. of Childr.*, 1889) considers it by no means necessary for a child with well-compensated mitral regurgitation to be debarred from all athletic amusements. The muscles should be trained gradually by well-regulated exercises: prohibitions from healthful games often do more harm than good. Warmth is of the highest importance in treatment.

Along with the subject of schooling, says Dr. Mitchell Bruce (*ibid.*), that of muscular rest, exercise, play and amusements has to be settled by the medical attendant of the child with valvular disease. When the period of rest after cardiac inflammation is ended, he will have to say definitely whether cricket and football are to be allowed or not, and to speak unhesitatingly as to other games and athletics. This calls for the employment of great judgment. One obvious rule to follow is to forbid all matches, whilst more or less "stupid" games of cricket and tennis may be permitted. Football and paper-chases are to be entirely forbidden; there is too much muscular strain and prolonged and increasing excitement in these games for delicate chests. Bicycling may also have to be interdicted, unless the country be level and the boy's ambition moderate. Swimming, whether in the sea, river, or swimming-bath, must be interrupted for a time. The seaside, as a whole, is less suitable for cardiac subjects than bracing inland places, where they will have wholesome walking, and be surrounded by abundance of reviving, strengthening, and yet soothing influences, with none of the exciting effects of the coast. When compensation has been completely established, muscular exercise should be ordered, the amount and the kind depending upon the nature of the primary lesion. Dancing will have to be forbidden girls for a time, to be gradually resumed in the gentlest form, under perfectly non-exciting circumstances.

According to Professor Nothnagel (*Centrbllt. f. klin. Med.*, No. 36, 1889), passive movement has generally a favourable influence in chronic valvular disease. Oertel's treatment, whilst indicated in

myocarditis, fatty heart, and idiopathic cardiac hypertrophy, is never suitable unconditionally for uncompensated valvular disease, and only admissible at the period of commencing disorder of compensation. One feature, however, of this method of treatment—diminution of the fluids allowed—is always advisable.

In massage of the heart Professor Oertel claims to have discovered a safe method whereby the same nutritive and circulatory benefits are attainable as from hill-climbing. In studying the effects of respiration on the circulation and heart, Donders long ago demonstrated that the cardiac systole was aided by expiration. Upon this fact Oertel largely bases his new method, which might be termed an adjunct to expiration. Briefly, the method (*Münch. med. Wochenschr.*, September, 1889) consists in the masseur placing his hands on each side of the patient's thorax, at the height of the fifth or sixth rib. Firm pressure is made at the beginning of expiration, while the hands are moved obliquely to the ensiform cartilage, the movement occupying the entire expiration period. Evidently this pressure must cause a more complete expiration than normal, which assists the heart in systole, hastens the blood-current, and renders oxygenation more perfect. Though Oertel considers it an important factor, the direct pressure on the surface of the heart must in many patients be extremely slight. Prolonged expiration on the part of the patient can in some cases be made use of. This semi-artificial expiration is followed by an increased inspiratory effort, which in its turn aids cardiac diastole. Thus, while the blood-current is accelerated and oxygenation rendered more perfect, nutrition is improved not only of the entire system, but also of the cardiac walls. There is, theoretically, a possibility of the prolonged inspiration dilating a weakened heart; but, practically, the danger may be ignored in all but the most advanced cases. Oertel's new method, based as it is on sound physiological principles, seems worthy of careful trial.

V.—CHRONIC HEART DISEASE: DIET.

Few subjects in connection with the treatment of disease of the heart deserve more careful study at the present time than diet. It is remarkable how little notice we find taken year after year of the proper food for the sufferer from cardiac dropsy, whilst the literature relating to medicinal treatment is so large. It would be well if the dietetic directions which ought to be given to cardiac patients were plainly laid down by some person of experience and authority. Before, however, dealing with the subject of feeding in cardiac cases, it will be interesting to note

the significance of the following investigations on the condition of the digestive functions in heart disease.

Dr. E. Hüfler (*Münch. med. Woch.*; *The Glasgow Med. Journ.*, p. 232, September, 1890) reports the results of his observations designed to explain the frequent occurrence of gastric disorders in chronic cardiac patients. He used the stomach-tube in ten cases; and, excepting in one case, found that free hydrochloric acid was never present in the gastric contents. In the exceptional case the hydrochloric acid was found six hours after a meal; that is, at an abnormal period. It is probable that the powers of secretion become greatly lessened as a result of failure of the heart. The practical outcome of this observation, therefore, seems to be that as soon as valvular disease has been diagnosed, the patient should, along with his other treatment, be placed on a course of hydrochloric acid, in the hope that the advent of gastric catarrh will be as far as possible postponed.

[The observation is interesting, but Dr. Hüfler's conclusion from it is a *non sequitur*. Deficiency of hydrochloric acid in the stomach is not rationally remedied by the administration of hydrochloric acid as a matter of course.]

Dr. Sansom (*Cyclop. of the Dis. of Childr.*, 1889) says that when there are signs of acute distress, when appetite is *nil*, and vomiting perhaps occurs, supplementary alimentation should be practised. Peptonised enemata are very useful, but as a rule Dr. Sansom prefers a nutritive enema made very simply, by shaking together in a bottle two ounces of warm milk with one ounce of cod-liver oil, or an egg with an ounce of hot milk and an ounce of cod-liver oil. Such nutritive enemata may be very gently administered three or four times daily. In stages of compensation the diet need not differ from that which is suitable for a healthy child; in non-compensation, and when intracardiac lesions are progressive, it should be the simple semi-fluid diet of the invalid child, especial caution being taken that the nervous mechanism of the heart be not disturbed by an over-distended stomach. Cod-liver oil has a very high place as regards the medicinal means for promoting nutrition in valvular incompetence, as it improves the conditions of anæmia whilst seldom interfering adversely with the processes of digestion. It is best given finely divided as an emulsion, and in doses of from twenty minims to one drachm three times a day. A nice emulsion is as follows:—Cod-liver oil, 30 minims; pure glycerine, 10 minims; solution of lime or mucilage of acacia, to one fluid drachm.

The Editor of *The Therapeutic Gazette* (vol. vi., No. 8, 1890) expresses his opinion that, in the treatment of cardiac dyspnoea,

the diet should be of a nutritious and digestible character, consisting of nitrogenous aliments rather than of carbohydrates. A diet largely of meat or fish is more easily digested than a strictly vegetable diet. With the latter diet, moreover, one is more likely to overload the stomach, and this distension cannot fail to embarrass the heart.

Professor Tyson, of Philadelphia (*The Medical News*, vol. i., 1890), writing on the management of obstinate dropsies, points out that to administer diluents in cases in which there is a complete saturation of all the tissues, including the kidney itself, with transuded serum, and no movement in the lymph-spaces and lymph-vessels, is only to increase the difficulty, because it results in a further interstitial accumulation of fluid. The indication is to get rid of liquid; and to do this more must be taken out than is taken in. As the kidneys have, for the time being, lost their power of removing fluid, ingestion must be restricted until the balance is restored. Hence we must watch, and measure, and limit the ingestion, and watch and measure the outflow; until the latter exceeds the former no improvement can result. Tapping the great cavities, and even, as a *dernier ressort*, the tissues, is an aid to our efforts in this respect.

VI.—CARDIAC FAILURE; SYMPTOMATIC TREATMENT.

Treatment of dyspnœa.

In a leading article in *The Therapeutic Gazette* (p. 527, vol. vi., No. 8, 1890) on "Cardiac Dyspnœa: its Pathology and Treatment," the Editor points out that the dyspnœa of cardiac affections is either mechanical, or toxic, or both. It may exist in the toxic forms, independently of any appreciable affection of the respiratory passages, simply by spasm of the arterioles; in the mechanical forms its essential condition is blood-stasis in the lungs. In mitral stenosis or insufficiency the dyspnœa is largely, if not altogether, mechanical, being due to pulmonary engorgement. Aortic regurgitation in the incipient stage also frequently presents dyspnœa of a mechanical character; but when the disease is advanced, and compensation broken, the dyspnœa may be either constant, or, more often, paroxysmal, coming on at night, like true asthma. The paroxysmal nocturnal dyspnœa of aortic disease, of fatty and fibroid degeneration, and of dilatation from whatever cause, has been attributed to the recumbent posture, the stomach and viscera being forced upward with the diaphragm, and encumbering the heart's area. In M. Huchard's opinion, this "aortic pseudo-asthma" is due to arterial

hyper-tension, which is augmented by the horizontal position and under the influence of sleep (as it is also increased by the effort of walking and of movement), and greatly raises the peripheral resistance against which the heart has to contend, producing a spasmodic condition of the arterioles, more or less constant. Sooner or later the kidneys undergo slow degeneration, and become incompetent for their functions. Hence the dyspnoea of aortic degenerative disease is not only mechanical, but toxic, from the impermeability of the renal emunctories. The leading indications in the treatment of cardiac dyspnoea are:—(1) To make the heart competent for its work; (2) to calm nervous perturbation; (3) to eliminate toxic elements which may be the cause of the dyspnoea.

(1) The first indication is likely to be very difficult of fulfilment. The dyspnoea is generally a symptom of failing compensation; and digitalis, strophanthus, and other heart tonics, confer only temporary and more or less uncertain benefit. By no medication can the heart be made sufficient for great tasks; the best that can be done is to adapt the work to the capacity of the heart.

(2) In order to calm nervous perturbation in advanced cardiac disease, a judicious selection may be made from the various analgesics, antispasmodics, and narcotics of the *materia medica*. Professor Germain Sée speaks highly of erythrophleum in 20-drop doses of the alcoholic tincture. In cardiac asthma the respiratory movements become slower and more ample under the influence of this remedy; or iodide of ethyl may be given in doses of 6 to 8 drops five or six times a day. In grave cases, sooner or later, resort must be had to hypodermic injections of morphine, in doses sufficient to quiet disturbed action, allay spasm, and facilitate respiration.

(3) M. Huchard directs attention to the beneficial results attending the employment of measures that lower arterial tension—bleeding, purgatives, nitrite of amyl, and nitroglycerine, and especially to the utility of an exclusive milk diet, in combating the paroxysms of aortic dyspnoea, often causing them to disappear in a few days. This medication acts, according to M. Huchard, in two ways, and fulfils two indications—first, by the abundant diuresis which it provokes, the milk diminishes the arterial tension and promptly eliminates the toxic principles contained in the blood; secondly, it acts because it is bland and harmless, and does not launch into the current of the circulation as do other aliments, and meat in particular, materials which, being incompletely eliminated, become rapidly toxic to the economy.

[Somewhat complex and obscure though it be, this theory of M. Huchard's affords the practitioner considerable material for his careful consideration.]

Use of sedatives.

As to the employment of sedatives Dr. Sanson (*op. cit.*) lays down the fundamental axiom that we should use first the least dangerous weapon. In the child suffering from palpitation, pain, and præcordial distress, bromide of potassium or sodium (2 to 10 grains every four hours) may be tried. As relief is afforded and sleep induced, the intervals between the doses may be lengthened. If the distress be too great for this, and sleep insufficient, we may add to the bromide 2- to 4-grain doses of chloral hydrate, or a single dose of 5 to 10 grains may be given nightly. If this, too, prove inefficient, we must have recourse to opium. Compound tincture of camphor is the best form to administer it to very young children (3 to 10 minims, according to the severity of the suffering, every 3 to 4 hours; after relief the intervals may be increased). Or Dover's powder (2 to 4 grains) may be given. After six years tincture of opium may be used with less risk, and may be continued for long periods with advantage, in the subjects of severe præcordial pain, the doses being from 2 to 5 minims. The excreta should be watched when opium is administered, and if there be constipation or absence of bile in the stools, grey powder or calomel must be given.

When there are any signs of progressing lesion, with præcordial discomfort, linseed poultices to the region of the heart give great relief; they may be sprinkled with mustard, or tincture of belladonna or opium, or both. The digitalis poultice may be of great benefit. To prepare it we boil 2 ounces of digitalis leaves with one pint of water for ten minutes; then gradually add 2 ounces of linseed meal, constantly stirring; spread the mass on tow, and smear it with olive oil.

In many cases of the rheumatic state in chronic valvular disease the administration of alkalies, especially the bicarbonate of sodium and potassium, seems to be attended with much advantage. Such treatment appears reasonable when the urine is loaded with urates and contains excess of uric acid. The value of the salicylates and salicin may be open to more question in the chronic conditions of valvular disease, but they are often of very great value. It is sometimes difficult or impossible to be sure, in a case of valvular disease, whether slow rheumatic changes are occurring or not; but sometimes a case which does not respond to treatment directed to restore compensation, distinctly improves under salicin or the salicylates. The favourable

influence of these agents is not measured by their power of allaying *painful* manifestations of rheumatism only, and Sansom counsels, when there is no response in a case of non-compensated valvular disease to the usual measures, that the sodium salicylate or salicin in an alkaline mixture be given in doses of from 3 to 10 grains with liquid extract of liquorice. In some of these cases the addition of small doses of iodide of sodium or potassium is often a distinct advantage. Iron may be combined with alkalies in the form of *mistura ferri composita*, the saccharated carbonate of iron, or tartarated iron.

Professor Eumme, of Siena (*The Medical Press*, December, 1889), considers that atropine is contra-indicated in lesions of the valves without compensation, and in lesions of the myocardium; whilst it is very injurious in nervous palpitation. In his opinion, it may be used only in aortic valvular troubles accompanied with angina pectoris.

Professor Cardarelli, of Naples, maintains, on the contrary, that the proper use of atropine is in cardiac affections of nervous origin, such as pressure on a nerve. In valvular disease he considers it a dangerous agent.

Surgical treatment of dropsy.

Dr. W. L. Axford, of Chicago, contributes (*Medical Standard*, March, 1890) an interesting paper on surgical interference in certain cases of dropsy. He considers that the anasarca or œdema involving principally the lower limbs, and depending on valvular disease of the heart or chronic nephritis, has not received that amount of surgical attention which should be given to it. There are three methods of drainage worthy of consideration, viz., incisions over the malleoli, capillary tubes, and multiple puncture. If free incisions, two or three inches long, and going into the cellular tissue, be made over each malleolus, and the patient placed in a semi-upright position, immense quantities of serum will drain away, and much relief be given to the sufferer. That these incisions drain both the cellular tissue of the extremities and empty such cavities as are filled with fluid is cheerfully admitted; but the patient objects to the cutting operation, an anæsthetic is usually dangerous, and the wounds produced do not heal nicely owing to the general health of the patient.

The simplest of all procedures, however, is the method of multiple puncture. It is done as follows. The patient is seated in a reclining chair, so that his legs and feet are in a tub containing a few inches of tepid water. With a sharp bistoury, held between thumb and forefinger, the surgeon makes from ten to fifteen rapid punctures of the skin below the knee on each leg.

The weight of the hand alone is enough to send the knife to the requisite depth. Immediately the cellular tissue is opened, a small slender stream commences to ooze from each puncture. Towels wet in tepid water are applied to the legs from time to time to keep up the flow. When the serum has drained away, the wounds are hardly perceptible and soon heal. Dr. Axford has never yet found multiple puncture to fail in cases of cedema of cardiac or renal origin. Such marked and great relief frequently follows this simple procedure that, although only a temporary expedient, it ought to be had recourse to more often.

[The value of multiple puncture of the legs in cardiac dropsy is not exaggerated in Dr. Axford's article. Indeed, the effect is occasionally more than a "temporary expedient," water-logged patients being so perfectly relieved by the lancet as to be able to resume the ordinary duties of life. The account given above of the method of managing the legs does not sufficiently describe the proper procedure now followed in England. The strictest antiseptic precautions must always be observed, both before and after the operation. The dressings should be some kind of antiseptic material, such as a salicylic wool supported by an antiseptic roller bandage, and changed every four hours. The patient should occupy a large easy-chair, which he will himself greatly prefer to bed. Digitalis, or one of its allies, must be given with extreme caution, if given at all, in these circumstances, lest fatal syncope occur.]

According to Dr. Sansom (*op. cit.*), the plan of puncturing the lower extremities for the treatment of dropsy, which is such a valuable method in the adult, should be avoided, as a rule, *in the child*. There is in the latter so much tendency to move and chafe the lower limbs, that irritation of points of puncture is readily brought about, with the result of increasing the fretfulness and discomfort. If there be a question between paracentesis and aspiration of the abdomen for coexisting ascites and puncturing the limbs for cedema, the former operation should be preferred.

VII—CARDIAC FAILURE; SUMMARY OF TREATMENT.

In every subject of heart disease that comes before us with symptoms of failure, particularly in cases of dropsy, we must inquire of ourselves what is likely to be the condition of the muscular walls which are liable to suffer in this way. Before we can employ digitalis, nux vomica, or other cardiac remedies with intelligence, we must do our best to estimate to what degree and

to what extent the muscular tissue and its arteries, on which we intend them to act, are free from inflammatory and degenerative changes. Krehl (*Centblt. f. klin. Med.*, No. 27, Beilage, p. 85, 1890) subjected the heart in seven cases of chronic valvular disease to exhaustive microscopical investigation, and obtained very suggestive results. In every instance there were present disseminated endocarditis, pericarditis, endarteritis of the small arteries of the myocardium, and fibrosis with extensive muscular atrophy. These anatomical changes present the character of progressive inflammation, and are most extensive in cases perishing of failure of compensation. They are of a kind calculated to lower the cardiac activity, and their significance in practical medicine is readily appreciated.

In an address on disease of the heart in children, Dr. Mitchell Bruce (*Brit. Med. Journ.*, April 26, 1890) discussed the treatment applicable in the case of a child suffering from cardiac failure. The practitioner must be guided by a careful estimate of the cause at work, including the conditions in which the child is living, which will save him from being guilty of routine practice, especially in the way of drugs. If the cause of failure be some indiscretion in feeding or general management, the proper and successful treatment consists in nothing more than rest, food, nursing, and the simplest remedies, followed by the administration of tonics and hæmatinics. Cases that can be traced to moderate over-exertion will be relieved by confinement to bed for a few days, and the interdiction for a time of exercise. Rheumatism is very often found to be at the bottom of disturbed compensation in the young. The measures employed must then be directed to combat the morbid process, whilst the heart is sustained. In other inter-current diseases (the specific fevers and pulmonary congestion) in these subjects, we must avoid all debilitating remedies, including the abuse of antimony, ipecacuanha and emetics. In a word, routine must be avoided: each case must be treated on its own merits, and it is only by faithful inquiry into the cause that has been at work in breaking the compensation, and by dealing with it, that we are likely to be successful in our practice.

If the cause of the cardiac failure be not discoverable, or the condition of the patient too urgent to justify us in dealing immediately with the cause, i.e., if instant attention be demanded by dyspnoea, palpitation, and failure of the pulse, we must employ cardiac stimulants. The best of these are ether, ammonia, and alcohol; whilst, more particularly, the subcutaneous injection of 1 or 2 minims of the 1 per cent. solution of hydrochlorate of strychnine in some instances has a marvellous effect in restoring

the flagging action of the ventricles. If the urgency be connected mainly with engorgement of the lungs and failure of the right side of the heart, great benefit may be derived from venesection, cupping, and leeching. In other circumstances, the judicious use of hydragogue purgatives, mercurial cholagogues, and stimulant expectorants will be attended with the very best results. If the condition of the patient is less urgent, the rational indication is to increase the cardiac force, so that the circulation may be restored and maintained. This can be fulfilled by the employment of digitalis, strophanthus, caffeine, squill, and their allies. Sometimes one and sometimes another of these remedies answers best; but on the whole, there can be no question that digitalis, if rationally employed, is still the most valuable. In other instances the best results are obtained from combinations of these drugs with each other and with other remedies, such as nitrites, strychnine, and, after a time, iron.

Lastly, the essential importance of attention to diet must be insisted upon. The diet must be highly nutritious, perfectly digestible, and given at short intervals, and under this head must be included the administration of stimulants in proper form and in proper amount. It may occasionally be necessary in the child to perform paracentesis, and this, if practised with judgment, may in some cases give not only immediate but lasting relief.

VIII.—CARDIAC STRAIN.

Dr. Schott, of Nauheim (*Centralblt. f. klin. Med.*, No. 27, Beilage, p. 84, 1890), has put the problem of the pathology of cardiac strain to experimental proof, by a kind of investigation which one hears of more often in Germany than in Great Britain. He induced acute strain of the heart in perfectly strong, healthy men by means of wrestling, which was made more violent until breathlessness was produced. In a second series of experiments the abdomen was at the same time encircled with a girdle applied below the borders of the ribs, so as to restrain the diaphragm, compress the bowels, and otherwise raise the intracardiac pressure. By these means Dr. Schott succeeded in establishing all the symptoms of acute dilatation of the heart. The intracardiac pressure rose; dyspnoea occurred; the pulse became irregular and very frequent; and the præcordial dulness was increased in extent in both directions, indicating enlargement of both ventricles and auricles.

This result agrees with what is found in persons who strain their hearts by exertion and tight clothing. In these, as in the

experimental cases, complete recovery takes place if the persons be otherwise sound ; whilst distressing or even dangerous symptoms may arise and persist, or death itself occur, if the heart be previously weakened by degeneration or valvular disease. Dr. Schott recommends that the treatment of such cases should be begun by ordering absolute rest and nutritious feeding, whilst pain is relieved by warm applications, or even morphine if necessary. Later on, as tonics are indicated, the best line of treatment is to order strengthening food, moderate exercise in the fresh air, and the baths and gymnastics so highly esteemed in Germany.

[There can be no question of the wisdom of rest in cases of *acute* cardiac strain. The difficulty in practice is to enforce rest for a sufficient length of time in patients who are generally men of active disposition, resent control, and fret under the restraint to which they have to be subjected—it may be for months on end. In cases of less severe cardiac strain in Great Britain a different line of treatment is indicated. In many instances of this kind the most important cause is unquestionably not so much the severity of the exertion as the unhealthy condition of the cardiac wall, which—either from that irritability often seen in soldiers, or from a kind of mal-nutrition frequently met with in middle-aged men of gouty habit—may be “strained” even by moderate exertion. The treatment must then very faithfully respect the indications of temperament and diathesis. In such patients exercise is invaluable, if properly regulated. Whilst confidence is begotten by encouragement and the assurance of ultimate recovery, the diet has to be rigidly controlled, morphine strictly avoided, and the proper activity of the digestive, hepatic, and urinary functions faithfully maintained.]

IX.—IDIOPATHIC ENLARGEMENT AND FUNCTIONAL DISORDERS OF THE HEART.

The cardiac effects of *malarial fevers* are in many points obscure, and the damage done to the heart has never been made the subject of sufficiently long and accurate study. Clinical observers have often noticed soft systolic murmurs, sometimes apical but more frequently basic, and pathologists have found various traces of myocarditis and endocarditis ; but the correspondence between the symptoms and the lesions has been imperfectly traced. Dr. G. Rausiet (*Revue de Méd.*, pp. 486—519, 1890), acting under the suggestion of Professor Grasset, at Montpellier, has spent much trouble on the subject during a mild epidemic of malarial fever,

which lasted about a year; but has not materially increased our knowledge. Of seventeen cases a systolic murmur accompanied the fever in all, as a rule with some oedema of ankles; none of them were fatal. In all there was good reason to believe that there had been no previous cardiac disease. The constant symptoms were a systolic murmur culminating at the apex, occasional reduplication of the second sound at the base, and no propagation of the systolic murmur along the large arteries except in one case. The inference is drawn that there was functional mitral incompetence, not dilatation from backward pressure in the circulation. Dr. Rauziet is inclined to advance the hypothesis that malarial poison acts on the heart through the nerves, to a degree lessening its complete contraction.

Sir Dyce Duckworth (*Brit. Med. Journ.*, pp. 371—375, August 16, 1890) selected *functional disorders of the heart* as the subject of his address at the opening of the Section of Medicine and Therapeutics at the recent meeting of the British Medical Association. Having treated of such cardio-vascular and rhythmical disturbances as infrequency, intermittency, irregularity, inordinate frequency, and inordinate vascular pulsation, he next took up the subject of the appropriate treatment of these conditions. He pointed out that there must never be a note of despair in any of our therapeutic efforts. By attention to early symptoms, to restoration of healthy function throughout the body, we may hope to rescue many of the sufferers. In this connection it is natural that we resort to various cardiac and vascular sedatives, such as digitalis and aconite. Iron, cod-liver oil, arsenic, and other nutritive tonics are distinctly useful. Especial attention must also be given to the digestive system, which is often at fault; while the various bromides will combat more overt nervous symptoms.

Dr. Edwin Rickards remarked that the prognostic significance of slow pulse depended much on the symptoms to which it gave rise; in the absence of symptoms and irregular pulse it is compatible with vigour of mind and body and with longevity. The brain first suffers. Fits of a mixed character, syncopal and epileptiform, due to cerebral anæmia, are of frequent occurrence, necessitating, as a rule, a bad prognosis. Dr. Rickards' patients derived no benefit from digitalis, strophanthus, iron, arsenic, quinine, or atropine. An albuminous diet, free from much fluid, suited them, and their well-being seemed to depend largely upon the avoidance of severe physical exertion.

Sir Walter Foster gave a valuable summary of his experience of certain drugs in reducing the pulse-rate. Hydrocyanic acid was

useful in some cases, probably dependent on gastric irritation ; but quinine was the drug from which most benefit, especially long-continued benefit, was derived. In daily doses of 10, 15, or 20 grains it reduced the pulse-rate ; and in two cases, in which it was tried for some weeks, it was successful after all other remedies had failed. In one instance the pulse fell from 156 to 90, at which it remained for some weeks after the cessation of the remedy. These cases were essentially neurotic, dependent mostly on emotional or sexual causes, but this class of cases gradually shaded off into Graves's disease ; and Sir Walter was confident that a class of cases of rapid pulse occurred which, under the persistence of their causes, would gradually develop into this formidable malady. He strongly advised quinine, continued over a long period, in somewhat large doses, for the treatment of such cases.

Dr. J. E. Engstad (*The Therapeutic Gazette*, September 15, 1890), from a long experience of the uses of *cactus grandiflorus*, now depends on it in preference to *digitalis* in functional disorders of the heart. He usually prescribes the fluid extract in 8- to 10-drop doses three times a day. In a lingering case of typhoid pneumonia, with feeble cardiac action, *cactus* stimulated the heart after *digitalis* and strychnine had been administered without benefit. Dr. Engstad also found *cactus* excellent during convalescence from typhoid fever, where the heart shows symptoms of failing. He regards its special field to be in functional disorders, such as *angina pectoris*, where it is almost a specific.

Professor Kisch (*Berlin. klin. Wochensch.*, No. 50, 1889) points out that tachycardia occurring in paroxysms is a frequent cardiac trouble associated with the menopause. He has observed that in the beginning of the climacteric, although the heart has hitherto been normal, women often complain of attacks of palpitation lasting some minutes, and recurring after several days. The palpitation is accompanied by a sense of anxiety, pressure in the chest, throbbing of the carotids, pulsation of the abdominal aorta, rushing of blood to the head, *muscæ volitantes*, noises in the ears, giddiness, and even fainting. Objectively, the cardiac action is found to be increased, the pulse varying from 120 to 150, usually strong, well-filled, and regular. The heart-sounds are normal. The ages of the sufferers range from thirty-eight to forty-eight. The patient is not anæmic, but well-nourished, strong, and full-blooded. The treatment consists in mild purgatives, bland food, active bodily movement, cold bathing, and moist applications to the abdomen. In another form of heart trouble associated with the change of life, the symptoms are those of cardiac weakness.

This occurs usually in delicate women, who have suffered from chlorosis in youth, and from anæmia later on; or in cases where the climacteric sets in with profuse menorrhagia; or in women who have formerly suffered much from menorrhagia, or have borne many children. In these cases the frequency of the pulse is not so high, though the pulse is weak, small, easily compressible, and sometimes intermittent or irregular. Dyspnoea and attacks of cardiac asthma occur, possibly with angina. Congestive appearances may be present, such as sudden chilling of hands and feet, and cedema of the ankles; occasionally there is albumen in the urine. It is very important in these cases to ascertain the condition of the pelvic organs. A third group arises from the tendency of fat to find its way into the heart as part of a general deposit throughout the body.

[Disturbances of the circulation in middle-aged women constitute a considerable group of the so-called functional disorders of the heart met with in Great Britain as well as in Germany. Whilst the imminence of the menopause is no doubt a cause of cardiac and vascular disturbance in many instances, as well as of failure of compensation in valvular disease, it is quite common to meet with cases of the kind ten years before the climacteric. The cessation of child-bearing, the development of fat (as Professor Kisch suggests), sedentary occupation, domestic worries and family cares, and occasionally alcoholic indulgence—these may, one or all, have a share in producing the distressing symptoms, amongst which faintness and pseudo-angina are often prominent. Treatment, to be successful, must be founded on a due estimate of all these possible circumstances.]

Dr. G. Owen Mackness (*Edinburgh Med. Journ.*, Aug., 1890) directs attention to the practice of prescribing cardiac tonics in heart disease in *pregnancy and labour*. In his opinion, such tonics should be avoided as long as possible, and never used until there are evident signs of failure of compensation. Before this appears, careful diet, moderate exercise, and the use of iron and arsenic, are all that are required. As soon as compensation threatens to fail, cardiac tonics act well as a rule, except in certain cases of mitral stenosis, where often they have no effect. Tincture of strophanthus in small doses ($2\frac{1}{2}$ m every four hours) is, perhaps, the best cardiac tonic. The prolonged use of such tonics after compensation has been restored tends to do serious harm, since the hypertrophy of the heart which they produce is followed by degeneration of its muscular fibres. Strophanthus is especially useful when there is continued vomiting due to gastric congestion, and its own tendency to produce sickness may be

counteracted by giving it with compound tincture of cardamom. If the venous congestion become very marked during pregnancy or labour, bleeding may in some cases give relief—at any rate, for a sufficient time to enable the labour to be completed, and so allow the heart to regain its power. Nitrite of amyl might, perhaps, be of use here, as it was found useful by Dr. Fraser Wright during the third stage of labour. The important action of the nitrite of amyl in these cases is upon the pulmonary and not upon the systemic arterioles. Since the bearing-down pains tend to increase the venous engorgement, chloroform should be given as soon as ever they appear; and the second stage of labour should be reduced to the shortest possible time, the administration of chloroform being continued until after the placenta has been delivered.

X.—GRAVES'S DISEASE.

Professor Nothnagel, of Vienna (*The Medical Press*, December, 1889), in a clinical lecture on Graves's disease, summarised the treatment as follows:—Digitalis, according to common experience, does not act at all on the tachycardia. It requires some firmness not to give this drug; but we may with comfort abstain from doing so, for it does not act. The same observation applies to the other remedies that act in the same way as digitalis. An effective agent against the palpitation is cold, in the form of an ice-bag, either over the cardiac region or, perhaps better, over the neck. These patients ought to live quietly, and to avoid coffee, beer, tobacco, and mental and bodily excitement. Little or nothing is to be expected from drug treatment. Galvanism, through the medulla oblongata and cervical sympathetic, must be regular and long-continued, and associated with a hydro-therapeutic course; the patient is then systematically treated in a cold-water institution, with tepid half-baths, irrigations, wrapping in moist linen cloths wrung out, and the cold spinal bag. By these means, along with the mental quietness, an improvement in the condition is in many cases effected. Iron may be given if indicated; in other cases, when patients are much excited, bromide of sodium or potassium may be exhibited in doses of 15 grains twice or thrice daily. An important means of treatment in well-to-do patients is to send them to the mountains, especially to the higher altitudes.

Dr. Hector W. G. Mackenzie (*The Lancet*, September 20, 1890) also summarises the treatment of Graves's disease. Digitalis really benefits some patients, whilst others are very intolerant of it. Most

patients appear to derive benefit from belladonna. Arsenic is found useful; there is good reason to believe that iron alone is not beneficial. The internal administration of iodine in any form has aggravated many cases of the malady. Galvanism does good in many cases, but faradisation, according to Vigouroux, has been found to yield much better results. He recommends the positive pole—a large electrode, $2\frac{1}{2}$ in. to 3 in. in diameter—to be kept applied to the nape of the neck during the whole administration. The negative pole—a small electrode about $\frac{1}{2}$ in. in diameter—is then applied, first to the carotid at the angle of the jaw on one side, then on the other, for about a minute and a half. The eyelids next receive attention. The small electrode is then replaced by a plate $1\frac{1}{2}$ in. in diameter, which is applied immediately above the sternum to faradise the goitre. Finally, the current is reversed, and the latter electrode is placed over the third left intercostal space to faradise the heart. The whole procedure lasts ten or twelve minutes, and must be done at least every other day. All are agreed as to the value of much simpler remedies, such as change of air, change of scene, and change of habits. Seaside or mountain air has brought about more rapid recoveries than any other means. Tea, coffee, tobacco, and alcohol, except in great moderation, are contra-indicated. Many cases are, however, most intractable. The benefit which results from leeching or bleeding during attacks of dyspnoea should be borne in mind.

Dr. Herdman (*The Times and Register*, August 23, 1890) discusses the various therapeutic agents which have by common consent proved the most serviceable in the management of exophthalmic goitre. Such are galvanism, digitalis, ergot, iron, and bromides; also nervine tonics, such as arsenic, phosphorus, and zinc. Of these, galvanism is, according to most writers, the most valuable, but there is no uniformity in the directions for using it. Dr. Herdman can from experience testify to its efficacy. The reverse current ought to be used, and passed as nearly as possible through the irritated nerves, to produce a sedative action upon them and the nerve-centres from which they originate. He has never used a stronger current than twenty volts.

Drugs are to be employed according to the indications in each case, and their tolerance by the patient. He found in some cases a combination of belladonna, digitalis, and nux vomica of marked benefit in controlling the rapid action of the heart, but the correction of indigestion and sleeplessness is of primary importance in conserving the patient's energy, which is otherwise in most cases rapidly dissipated.

Dr. G. M. Hammond (*New York Med. Journ.*, January, 1890) gives a somewhat hesitating recommendation of carbazotate of ammonium in the treatment of exophthalmic goitre. He gives the drug in the form of pill—3 grains daily in 1-grain pills for the first week, increasing each dose by 1 grain in the second week, and by a further addition of another grain in the third week. At about the end of the first week the skin and conjunctivæ assume a slight saffron colour, which deepens if the drug is persisted in; then a peculiarly unpleasant odour exhales from the body, and can be distinctly noticed within six or eight feet of the patient; subsequently severe gastric disturbances are apt to set in. It is rarely possible for the patient to take the remedy for more than three weeks; but whilst it is being taken the effects upon the heart, the respiratory tract, and the exophthalmos are undoubted.

Dr. J. Leonard Corning (*New York Med. Journ.*, September 13, 1890) adopts the following line of treatment in cases of exophthalmic goitre. In order to prevent the excessive blood-pressure in the thyroid, cranial cavity, and orbit, he places the patient in a warm bath for three-quarters of an hour every day; and sometimes in addition he applies elastic straps round the legs, so as to interfere with the circulation in the veins, but not so tight as to arrest that in the arteries. By these means he hopes to secure a considerable amount of derivative action and lessen the blood supply to the thyroid. He also applies styptic collodion to the skin over the thyroid, and fits it with a carefully adjusted elastic truss. He makes daily applications of galvanism to the thyroid gland, employing for this purpose an electrode of potter's clay moistened with iodine, of sufficient size to envelop the whole gland. The negative pole, a flat sponge, is applied to the nape of the neck. The applications are made twice daily, for periods varying from ten to twenty-five minutes, and are continued for six weeks or two months at least. When the pulse is very rapid, he gives aconitine; when not so rapid, digitalis, sparteine, or strophanthus. The diet is very important. It should consist largely of milk, of which the patient may take from two to four quarts a day. Bread-and-butter, poultry, and game may be allowed in moderation. Alcohol in all its forms is contra-indicated. Bitter tonics, arsenic, and iron will often be serviceable. Freedom from excitement and mental strain should be insured, but simple games, musical entertainments, and a moderate amount of reading may be prescribed. The patient should not of necessity be kept in bed.

Professor James Tyson (*The Journ. of the Amer. Med. Assoc.*,

October 11, 1890) sums up the therapeutics of exophthalmic goitre as follows :—The most used remedies are digitalis and the bromides: digitalis to slow and steady the pulse; the bromides for two reasons, first as nervous sedatives, and secondly for their reputed action in producing anæmia of the nerve-centres. Aconite with the bromides is of service in cases where there is no cardiac lesion and the pulse is good and strong. Ergot is also a rational remedy, owing to its power of contracting the calibre of blood-vessels. There exists a difference of opinion as to the propriety of administering iron. Dr. Tyson considers that the decision should be based upon the condition of the patient, and the presence or absence of anæmia. Galvanism of the sympathetic is claimed to be of service by some writers. A case of Dr. Tyson's improved on a course of carbonate of iron (2 grains), digitalis and ergot (of each half a grain).

No one seems ever to have deliberately set about answering the question whether Graefe's lid sign is always absent in health and in other diseases. Dr. Sharkey (*Brit. Med. Journ.*, October 25, 1890) publishes the results of an investigation on this point which he made upon 613 cases of diseases of all kinds. Of these he found that 12, or a little less than 2 per cent., presented it well marked. Many others had it so long as they stared at the object held before them; and it was difficult to prevent them from doing so. A large proportion of healthy people can voluntarily produce the lid sign themselves by staring. Graefe's lid sign, then, being far from always present in undoubted cases of Graves's disease, and being often very well marked in others who certainly have not Graves's disease, it cannot be considered very valuable as a diagnostic sign. In the act of staring there is preponderance of action of the levator palpebræ although the orbicularis palpebrarum may be normal. In Graves's disease the preponderance of the levator muscle is due, not necessarily to its over-action, but to diminished power in the opposing orbicularis muscle.

DISEASES OF THE LUNGS AND ORGANS OF RESPIRATION.

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I.—BRONCHIAL ASTHMA.

1. Dr. Dieulafoy (*Bulletin Méd.*, Jan. 22, 1890) recommends the following treatment in bronchial asthma. At the beginning of the attack the inside of the nostrils should be painted as high up as possible with a 1 in 20 solution of cocaine, which should also be sprayed into the mouth and nose for four or five minutes at a time. If these measures do not cause the attack to abort, cocaine should be injected hypodermically, and from 1 to 12 drops of pyroline be inhaled. To combat the diathesis, three remedies should be used—iodide of potassium, belladonna, and arsenic. For fifteen days from 15 to 30 grains of iodide of potassium should be given daily, and the drug should then be replaced by belladonna. At the same time the patient should take daily, after the chief meal, a teaspoonful of a solution of 1 grain of arseniate of soda in 2½ ounces of water. (See also "Year-Book" for 1890, p. 23, § 3.)

2. Dr. Silva Nunes (*Brit. Med. Journ.*, 1889, ii., p. 1051) states that the alkaloid *lobeline* in medicinal doses does not produce the nausea or vomiting often caused by the ethereal tincture of lobelia, which is due to a separate emetic principle. Lobeline itself acts rapidly and evanescently, and is quickly eliminated. It may be given hypodermically or in pill, or to children in fruit syrup. The dose by the mouth varies from 5 to 40 centigrammes ($\frac{3}{4}$ gr. to 6 grs.), and for children from $\frac{1}{8}$ gr. to $\frac{3}{4}$ gr. Dr. Nunes says that cases of asthma are permanently relieved many months after taking lobeline.

3. Mr. C. Smith (*Med. Chron.*, March, 1890) records a case where *antipyrin* was strikingly successful. The patient, a man thirty-six years of age, had been subject to asthma for some years, usually having an attack every four or six weeks; all other

treatment had failed, except that nitro-glycerine at first seemed to shorten the paroxysms. In August, 1889, 30 grains were given at the beginning of an attack, and in ten minutes there was complete relief; a slight recurrence twenty-four hours later was promptly subdued by the remedy, and from that time up to January the patient had remained entirely free from asthma.

Dr. P. J. Arkhangelsky (*Meditz. Oboz.*, 1889, x., p. 1000) gave antipyrin in doses of from 10 to 15 grains two or three times a day to a patient with severe asthma probably dependent upon the pressure of a tumour; always with striking alleviation of the dyspnoea, headache, and other subjective symptoms. (*See also* "Year-Book" for 1890, p. 22, § 2.)

4. **Quebracho** proved of great service in a very severe and refractory case of asthma, under the care of Dr. V. M. Kritovskiy (*Novosti Terap.*, 1889, xii., p. 178), where all the usual remedies had failed. Under its use the paroxysms rapidly ceased; they returned when the drug was discontinued, and disappeared altogether when it was again given.

5. Dr. T. F. Pearse (*Lancet*, 1890, i., p. 240) has found nothing to equal *nitrite of sodium* in asthma. In doses of from 3 to 5 grains, frequently repeated, it rapidly relieves the paroxysms, and tends to prevent their recurrence.

6. The subcutaneous injection of *nitro-glycerine* is advocated by Dr. Hofmann (*Pharm. Journ. and Trans.*, June 28, 1890) in doses of from $\frac{1}{150}$ to $\frac{1}{120}$ of a grain; he states that the effect is remarkable, and that no bad results have followed. (In the case of a remedy such as nitro-glycerine, which is so quickly absorbed and so speedily produces its physiological effect when given by the mouth, it is hardly desirable to resort to hypodermic injection.)

7. Dr. T. J. Mays (*Boston Med. and Surg. Journ.*, April 3, 1890) advocates the hypodermic injection of *strychnine* ($\frac{1}{50}$ gr. to $\frac{1}{45}$ gr.) and *atropine* ($\frac{1}{150}$ gr. to $\frac{1}{100}$ gr.) in asthma, on the theory that a general lowering of the nerve-tone of the body exists in this condition; and states that six cases improved rapidly under this treatment, and at the time of the report had continued well for some weeks or months.

II.—NEW EXPECTORANTS.

8. **Cocillana** is the bark of a species of guarea, discovered in Bolivia by Professor Rusby in 1886; it is there used as an emetic, and rarely as a purgative; in over-doses it acts as a narcotico-irritant poison. It acts locally upon the mucous membrane, either when directly applied or when absorbed; nausea, with a metallic taste in

the mouth, is produced within half an hour of taking the drug, with early discharge of mucus, followed by dryness of throat—indicating the occurrence of stimulation of the vessels and glands of the mucous surfaces, especially the respiratory—which lasts for some hours, and is followed by diminished activity of the secretory apparatus. It is excreted very slightly by the skin. The dose of the concentrated tincture is ʒss to ʒij, and of the fluid extract ℥ 5 to ℥ 25, every two to eight hours.

Dr. D. H. Stewart (*Medical News*, August 24, 1889, and *Therap. Gaz.*, Nov., 1889) concludes that cocillana is serviceable in bronchial catarrh, especially the subacute and chronic forms, when accompanied by scanty or moderately profuse secretion; rendering the cough less frequent and difficult and the bronchial secretion less viscid and more easily expectorated, while at the same time it lessens its amount. Transient nausea occurred in two cases.

Dr. R. W. Wilcox (*New York Med. Rec.*, Jan. 11, 1890) considers cocillana most useful in subacute and chronic dry bronchitis. As an expectorant it acts more surely than apomorphia or ipecacuanha in liquefying the bronchial mucus. In bronchorrhœa it might, however, increase the secretion to a dangerous amount, and in senile bronchitis it is not so useful as carbonate of ammonia. Appetite is usually increased, and a slightly laxative action may be produced. In chronic pulmonary disease, cough, expectoration, night-sweats, and constipation are all ameliorated. He concludes that the remedy may fully replace ipecacuanha.

Dr. L. H. Mettler (*New York Med. Journ.*, April 5, 1890) states that cocillana should not be given in the earlier stages of acute inflammation of the air-passages, but that it is most useful when the attack is becoming subacute. In capillary bronchitis and chronic forms of broncho-pneumonia he prefers the ammonia salts; and the remedy should not be given in phthisis, or any pulmonary affection with marked debility, on account of the depression which sometimes follows full doses. The best results are obtained in chronic bronchitis, with scanty tenacious secretion. The drug may be pushed until slight nausea is produced, which shows that the maximum dose has been reached.

9. Naregamia is obtained from the bark of the *Naregamia alata*, a plant indigenous to Goa. Hooper has extracted from it an alkaloid, an amorphous powder forming crystalline salts with acids. The bark also contains oil, sugar, resin, etc., and a nitrogenous crystallisable body much like asparagine. In India it has a considerable reputation as a cholagogue, and is used in dysentery and as an expectorant.

Dr. Schoengut (*Centralbl. für die Gesammt. Therap.*, March,

1890) has made observations with a tincture of naregamia prepared by Messrs. Parke, Davis, and Co. As an expectorant this preparation gave the best results where severe cough existed with but slight secretion in the air-tubes, or where the tenacious character of the sputum interfered with expectoration. The results show that naregamia facilitates secretion and makes it more fluid. The respiratory movements also become deeper and more regular under its influence, though laboratory experiments failed to show that any direct influence was exerted upon the respiratory centre. Its effect in heart-disease with catarrh, and in emphysema, was excellent; but in phthisis no permanent good resulted, and in one case of dysentery no improvement took place. Rossbach has shown that emetine acts directly on the mucous glands of the trachea and bronchi without affecting the blood-supply of the part, and is thus a true secretory stimulant. Schoengut obtained similar results with naregamia in experiments on animals; increase of tracheal and bronchial secretion, without any modification of blood-pressure or cardiac action. On the other hand, in rabbits, which do not vomit, while large doses of ipecacuanha lessen the activity of the heart and of respiration, and lower the temperature, similar experiments with naregamia show that these depressing effects are absent. It would therefore appear that naregamia acts purely as a direct stimulant to the glands of the respiratory tract, and has no influence on the circulation, and no toxic action beyond the occasional production of nausea or vomiting.

10. Gurjun oil.

Dr. W. Murrell (*Lancet*, 1890, i., p. 962) has tried copaiba as a remedy for chronic bronchitis and winter cough. It proved an excellent expectorant, but produced rash, and often irritation of the throat, diarrhoea, and vomiting. Searching, therefore, for some allied drug, he made trial of gurjun oil, which at one time was largely used to adulterate copaiba. Gurjun balsam, or wood oil, is a balsamic exudation from the *Diptocarpus turbinatus* and other species in the East Indies. It has the consistency of olive oil, and an aromatic odour and taste not unlike copaiba, but without its acidity. Dr. Murrell gave it in doses at first of 1 drachm, and then of 2 drachms, three times a day, in a mixture with liquor potassæ, spirit of nitrous ether, mucilage of acacia, and cinnamon water; and afterwards with extract of malt, 2 drachms of the oil to an ounce of malt extract, three times a day. The patients with chronic bronchitis, many of whom had taken copaiba before, said that the remedy acted admirably as an expectorant, "clearing the chest," and easing the cough. No

discomfort was produced ; and gurjun oil seems therefore to possess the advantages of copaiba, without its drawbacks.

11. Hydrogen peroxide in diseases of the respiratory organs.

Dr. D. M. Cammann (*New York Med. Rec.*, November 2, 1889) used this remedy in cases of chronic bronchitis (most with pleuritic adhesions), emphysema, pleuritic adhesions with valvular disease of the heart, and phthisis. All the patients improved, except the phthisical and one case of chronic bronchitis ; cough, expectoration, and dyspnoea lessened, appetite improved, sleep was induced, and in half the cases the urine was increased in amount.

III.—HÆMOPTYSIS.

12. The non-tubercular and non-cardiac hæmoptyses of elderly persons.

Sir Andrew Clark (*Brit. Med. Journ.*, 1889, ii., pp. 909 and 924) read a paper on this subject at the Medical Society of London, in which he laid down the following propositions :—

(1) There occurs in elderly persons, free from ordinary heart and lung disease, a form of hæmoptysis due to minute structural alterations in the terminal blood-vessels of the lung.

(2) These vascular changes occur in the arthritic diathesis, resemble the vascular changes found in osteo-arthritic articulations, and are of an arthritic nature.

(3) Though sometimes fatal, this form of hæmoptysis generally ceases without the supervention of any coarse lesion of heart or lung.

(4) It is aggravated or maintained by the administration of astringents, by the application of ice to the chest, and by unrestricted indulgence in liquids.

(5) The treatment which appears most successful is by rest and diet, by restriction of liquids, by stilling of cough, by calomel and salines, and alkalies with iodide of potassium, and by frequent counter-irritation.

In the discussion which ensued, Dr. Angel Money expressed the opinion that these were only cases of emphysema with arterial degeneration, and doubted if the arthritic poison spent itself on the affected vessels only ; Dr. Quain was familiar with such cases, and had always associated them with vascular disease, be it atheroma or sclerosis ; and Dr. C. T. Williams thought that in some instances the hæmorrhage might be due to hæmophilia.

13. The application of ice to the chest in hæmoptysis.

Dr. Thorowgood (*Lancet*, 1889, ii., p. 927) quotes Dr. Quain as saying that ice does harm by causing bronchitis, and argues that the prolonged application of cold is bad; that the sudden shock of its application causes contraction of vessels, but its continued application does not maintain contraction, and may cause congestion and bronchitis. Dr. Lauder Brunton has shown that when ice is applied to the abdomen of an animal, within half a minute the trachea and larynx become deadly pale from contraction of their vessels; but that if the ice is left in place the mucous membrane quickly changes colour, becoming first slightly red, then deeply congested, and in ten minutes livid. Dr. J. More (*Lancet*, 1889, ii., 1032) points out that Leichtenstern has demonstrated that in the case of the cold bath peripheral contraction of vessel is greatest at first, and tends to remit; and that as a consequence of long duration or excessive cold of the bath, relaxation of vessels succeeds over-stimulation. The intermittent rather than the prolonged application of cold is therefore needed in hæmorrhage.

IV.—PNEUMONIA.

14. The most important contribution to the therapeutics of Pneumonia that has appeared during the year is contained in the section on Treatment in the scientific and philosophical treatise on "The Natural History and Relations of Pneumonia," by Dr. Octavius Sturges and Dr. Sidney Coupland (Smith, Elder and Co., 1890).

After a critical historical survey of the subject, the authors proceed to give the results of their own experience and practice. After showing that, "speaking generally, the more active treatment has coincided with the larger mortality, and that modern practice, recognising a natural tendency to recovery, has reserved its remedies for incidental symptoms without seeking to interfere with the course of a disease which it is powerless to arrest," they discard all notion of specific remedies for pneumonia, and state that its treatment is the treatment of its symptoms; to relieve pain, to secure sleep, to feed, to control pyrexia, and, when necessary, to stimulate.

The pain of pleuritic stitch is relieved by hot (wet or dry) or cold applications to the chest, and, if necessary, by local leeching, aided sometimes by an opiate, chloral, or sulphonal; or, failing these, the subcutaneous injection of morphia over the seat of pain. The same measures will often relieve cough. In the matter of diet the patient's own taste may be consulted, provided that he has sufficient nutritious fluid food. If at the beginning

of pneumonia the patient has symptoms of a bilious attack, a mercurial will do good. A little wine may help the appetite and digestion. The air of the room must be kept pure, at an even temperature, and moist. Sleep is best obtained by relieving pain or prostration; but if obstinate sleeplessness last over two or three days, it is better to give one full dose of morphia rather than to trust to uncertain narcotics like chloral, or bromide, or sulphonal, or to repeated small doses of morphia, which are sometimes the reverse of narcotising. Local applications have no influence on the course of the inflammation.

Thus tended, most cases of pneumonia recover. Sometimes, however, exceptional symptoms have to be met. *Pyrexia* is best treated by the application of cold to the surface; though in a brief type of pyrexia such as characterises pneumonia the need for antipyretic treatment is not frequent. A sustained temperature of over 104°, however, ought not to be suffered.

Cold is best applied locally to the chest by means of the ice-bag, as recommended by Dr. Lees (*see* p. 40, § 15). The good effect is probably due to the general diminution of fever rather than to any control of the local process. In the case of the debilitated or aged the ice-bag should not be used. Wet packing of the whole body involves too much disturbance. True hyperpyrexia must be treated with the cold bath. Antipyretic drugs are unsatisfactory; salicylic acid may act unfavourably on the heart; quinine often has no effect; antipyrin, in the authors' experience, is uncertain in its action, and may induce cardiac depression (in one case 110 grains in divided doses lowered the temperature only 2°); antifibrin, like antipyrin, is of small service in pneumonia, and is apt to be mischievous. The antipyretic action of cold seems to be more stimulant than that of drugs.

Active delirium needs alcoholic stimulation, and a full narcotic dose or hypodermic injection if associated with persistent sleeplessness.

Asthenia is also an indication for free stimulation.

Bleeding from the arm, to 8 or 10 ounces or more, will probably relieve when dyspnoea is the prominent symptom and prevents rest, and when the lung is solid or mostly so; and the venesection may be repeated if the benefit of the first operation has been marked but not permanent.

The authors conclude with the following sentence:—"At present we are content with the adoption of means which have the advantage of obvious reasonableness, resting not on the shifting sand of to-day's therapeutics, but on broad principles of conduct universally recognised and understood."

[Their opinion with regard to the action of antipyretics in pneumonia is in accordance with the experience of American physicians, who appear to be almost unanimous in the statement that these remedies are very prone to cause dangerous cardiac depression. (See "Year-Book" for 1890, p. 24, § 9).]

15. The ice-bag in pneumonia was advocated by Dr. D. E. Lees before the Harveian Society (*Lancet*, 1889, ii., p. 890). Eighteen cases were treated, with no deaths; and in most a remarkable improvement occurred. There was usually a striking immediate fall of temperature—often 3° or 4° , or even more, and in one case 7° . If it rose after, while the ice was still applied, it was generally to a decidedly lower level; and if on removal of the ice it rose beyond its original height, the application of cold again rapidly subdued it.

The results were specially marked in children, in whom the temperature is more easily affected and the ice-bag covers a larger proportion of the chest-wall. In many there was also a striking arrest in the development of the physical signs and of the general symptoms of the disease, beginning sometimes a day or more before the crisis, and far advanced when the crisis occurred. No harm resulted. Doubtless, collapse may be caused by the incautious use of cold, especially in the very young, and in broncho-pneumonia in feeble children; but it can almost always be prevented by care. The temperature should be taken hourly, the ice-bag being removed when it falls to 100° , and replaced at 102° . Sometimes warmth to the feet and brandy are useful at the same time. The ice-bag should not be applied directly over the heart, as collapse may be produced by the direct action of cold upon this organ, as Dr. Lauder Brunton has shown by experiment. Its use is also contra-indicated in the case of very feeble children, the aged, and in adynamic conditions generally. Dr. Lees concludes that the ice-bag over the pneumonic lung not only reduces the temperature, but also tends to repress the inflammatory process in the lung.

In the discussion that ensued, Dr. Goodhart stated that he had used the ice-bag in eighteen cases of pneumonia, with good results in eight; the temperature and pulse rapidly falling, and convalescence being quickly established. In seven it was doubtful if any effect was produced, and temporary collapse occurred in three. He thought that there was no risk if the treatment was watched, and if it was not applied to children under two years of age; but considered that, in estimating the actual benefit derived from it, it was difficult to eliminate the natural crisis.

Dr. Sturges had little experience of this method of treatment,

but pointed out that all Dr. Lees' cases occurred at an early age, when the mortality is small. He thought it most likely to be useful in the broncho-pneumonia of children, which was much more fatal than croupous pneumonia. It was impossible to say that any remedies were successful in curing lobar pneumonia. Ice had a good effect upon temperature, delirium, and headache; but he doubted if it arrested the inflammation, and doubted if it was any great good to do so. The late Dr. Hughes Bennett had recorded over one hundred cases, some occurring in elderly people, with a mortality of only five per cent. Dr. Sidney Phillips said that the application of ice to any part of the body would have the same effect in reducing temperature, but he doubted if the course of the disease was cut short. Dr. Trard had used the ice-bag in six cases in children; in three of these with good effect, but in the other three with the production of alarming collapse. In six other children treated on the expectant method the result was uniformly excellent. (See "Year-Book" for 1890, p. 26, § 14.)

16. The inhalation of oxygen is recommended by Dr. J. Chambers (*Lancet*, 1890, i., p. 1120) in some cases of pneumonia with marked cyanosis and dyspnoea and weak heart's action. A rubber bag containing from one to two gallons is filled with the gas, which is administered by means of a rubber tube with a mouthpiece attached. As the gas is heavier than air, the bag should be held up, and slight pressure can also be made upon it if necessary. A dose of from half a gallon to a gallon may be given every half-hour with perfect safety, and with excellent effect. Dr. Chambers has continued the administration for as long as four days and nights, and believes that by its means patients have recovered who otherwise must have died. (See also "Year-Book" for 1890, p. 24, § 8.)

(A company in Victoria Street, Westminster, sell pure oxygen at about 2d. per 60 cubic feet, compressed in steel cylinders.)

17. Statistics of pneumonia.

Drs. C. W. Townsend and A. Corlidge (Dornan, Philadelphia) publish the statistics of 1,000 cases of pneumonia occurring in the Massachusetts General Hospital from 1822 to 1889, showing a mortality of 25 per cent., and come to the conclusion that "treatment—heroic before 1850, transitional between 1856 and 1860, and expectant and sustaining since 1860—has not influenced the rate of mortality;" and that "treatment has not influenced the duration of the disease, or of its convalescence."

V.—THE TREATMENT OF PULMONARY TUBERCULOSIS.

18. The literature of the year in this important section of respiratory therapeutics is noteworthy, as showing a reaction from the various reputed specific or anti-bacillary methods in favour of the older principles of hygienic and constitutional treatment. The *Lancet* (1889, ii., p. 1015) says that "the antiseptic treatment of phthisis has not prospered, and is probably now being quietly dropped by the majority of those who are sufficiently unprejudiced to refuse to become the victims of a preconceived idea. Inhalations, injections *per rectum*, the air of pine-forests, carbolic acid, creasote, fluoric acid, and a host of other such remedies, have had their trial, and the result has been disappointing. We are still forced to rely for success mainly on measures that seek to lessen susceptibility and to increase the constitutional resistance to the disease." Dr. Douglas Powell (*Brit. Med. Journ.*, 1889, ii., p. 1317) believes that the bacillus "would cheerfully withstand antiseptics in doses beyond the tolerance of its host;" and Dr. Saundby (*ibid.*) considers antiseptic treatment useless against this micro-organism. The one notable exception in favour of specific treatment is furnished by Koch's communication to the International Medical Congress. (See § 38, p. 55.)

A.—HYGIENIC AND CONSTITUTIONAL TREATMENT.

19. The open-air treatment of phthisis has found many advocates. Dr. H. L. Bowditch (*Lancet*, 1889, ii., 805) urges open-air travel "as a cure and preventive of consumption." For years he has directed every phthisical patient to walk daily from three to six miles; never to stop in, unless for a violent storm; and if in doubt, to go out. A cloudy day, a mild rain, or the coldest weather, is no obstacle. He thinks that such patients might be sent "over short distances in open vehicles, instead of thousands of miles off, in ill-ventilated cars, to an entirely different climate;" and that this open-air journeying at home is not enough tried. He instances his own father, who, after being condemned as phthisical, derived the greatest permanent good from a driving-tour in a one-horse chaise; and ultimately, on his death at the age of sixty-five from another cause, an old scar was found at one apex.

Dr. G. W. Hambleton (*Illustr. Med. News*, Jan. 4, 1890) lays great stress upon measures to increase the vital capacity of the chest—slight hill-ascents, gradually increased; the regular practice of

deep breathing; the use of the spirometer; exercises to develop the muscles of the chest. These should be continued until the vital capacity exceeds Hutchinson's "standard of health." He quotes Sydenham, who cured by horse-exercise, prescribing from 7 to 150 (!) miles a day—the patients only to stop for food, and not to stay more than one night in a place—and says, "I have put very many upon this exercise, and I can truly say I have missed the cure of very few."

20. In an article on *Respiratory Gymnastics*, the *Lancet* (1890, i., p. 1130) enumerates these as walking, mountain climbing, riding, swimming, ordinary gymnastics, games, playing wind instruments, and singing; and concludes that in chronic pleurisy and chronic pneumonia they promote the expansion of the chest, which is often obtained by regulated mountain-climbing in a good climate; and that in early apyrexial phthisis an active life is good, and singing and moderate playing of a wind instrument, such as the flute, promote the desired expansion of the chest; while in the prophylaxis of phthisis respiratory gymnastics are essential. In chronic bronchitis and emphysema, on the other hand, where the lungs are already over-expanded, all such exercises are bad.

21. M. Pouzet (*Brit. Med. Journ.*, 1889, ii., p. 1108) gives an account of the method followed at Dr. Dettweiler's sanatorium at Falkenstein, in the Taunus mountains, 400 mètres above sea-level. The patients are placed on open balconies, sheltered from the wind and exposed to the sun, where they recline in loose warm clothing or sit in shelters; and, thus protected, live all day in the open air, whatever the weather. Early rising is insisted on, and the day begins with dry or moist friction to the skin, while the stronger patients have the douche. After a simple breakfast the patients go to their couches, from which they rise occasionally to take short walks, generally up a gentle slope, throwing back the shoulders, and each quarter of an hour taking at least ten deep inspirations through the nose. The stronger take long walks in the adjoining forest. All are obliged to expectorate into spittoons. The windows are kept open at night, and all curtains, carpets, and hangings are removed. Stoves are only lit during dressing in the morning, and never at night; but sleeping in woollen clothing, without too many bedclothes, is advised. Of 1,022 cases of phthisis so treated, 13·2 per cent. recovered, and 11 per cent. much improved. (*See also* "Year-Book," 1890, p. 26, § 17; and p. 38, § 41.)

22. Dr. Darsenborg (*Lancet*, 1890, i., p. 1334) is in favour of the open-air treatment of phthisis, and says that good results in

the great majority of cases; but he does not advocate active exercise. The first result of the open-air method is that fever lessens, which indicates the arrest of the threatened general infection of the body, and diminished activity of the disease in parts already invaded. Better nights are consequently obtained, appetite increases, the respiratory movements become freer, and cough is relieved. Patients bear the treatment better when lying down than when up, and therefore it is best begun by opening the bedroom window in the morning as soon as the temperature of the air reaches 8°C . After a time night air can be breathed with advantage. Patients thus hardened off bear well the atmospheric disturbances so trying to the phthisical who live a sheltered existence, and attacks of hæmoptysis and congestion are much less frequent. All fatigue must be forbidden, even short walks, should the temperature be over 38°C ., as exertion and fatigue are the greatest enemies of the phthisical. The results of this mode of treatment are remarkable, even in those suffering from high fever and hectic emaciation.

23. American sanatoria for consumption exist at Saranac Lake, Asheville, N.C., Lake Palmer, Col., Colorado Springs, and Santa Fé, New Mexico; the last being a camping-out organisation for patients of somewhat limited means who could not otherwise obtain the treatment. At Saranac Lake the results *per cent.*, as given by Dr. Trudeau, are as follows:—Up to the end of 1888, of 146 cases of phthisis treated: died, not quite 3; steadily failed, 17; remained stationary or slightly improved, 26; disease arrested in 43; cured, 11; and for the year 1888–89, restored so as to return to work, 20 per cent.; cured, 14 per cent. At Saranac, antifebrin and creasote are given, and the “pneumatic cabinet” is used; but an out-door life is chiefly relied upon. The patients gradually get to spend eight or ten hours daily in the open air, at first avoiding undue exposure to cold or rough weather; but by degrees they become accustomed to being out all day in all weathers, sitting or walking about, sheltered by verandahs in stormy weather. If feverish, they sit well wrapped up on the verandahs. Violent exercise is avoided, especially in hot weather; as fatigue causes loss of appetite, fever, sweating, and exhaustion. If fever is present, as little exercise as possible is enjoined. If regular meals cannot be taken, milk is given every four hours. No stimulant is allowed without orders, and no smoking without medical permission. The patients expectorate only into spittoons, which are disinfected or burnt. At Asheville, creasote has been abandoned, and alcohol in moderation is allowed.

24. Dr. P. C. Remondino (*Lancet*, 1890, ii, p. 22), President of

the Board of Health of the city of San Diego, speaks highly of the marine climate of the *Southern Californian Coast*. The remarkable features of the climate of this region can only be understood by recognising the peculiar formation of the country, owing to which there is during the day-time an almost continuous sea-breeze, which is really a land-breeze on its return to its place of origin, and is therefore comparatively dry; its speed is about five or six miles an hour. By night this wind is reversed. As a result, the summer heat is so moderated that the mean for July and August is only 67° and 69° , as compared with 58° and 56° for November and December. The annual rainfall is everywhere small; at San Diego, 11 inches; at Los Angeles, 17 inches; and at Fort Yuma, across the mountains, on the great Colorado desert, less than .4 inches. Dr. Remondino says that consequently the climate combines dryness—due to low rainfall, character of soil, and proximity of great deserts—with equability the result of the regular succession of the winds described; and holds that “this marine climate is without an analogue;” sea-coast climates are generally of the moist order, whereas this, with all its humidity, is a dry coast climate; and one part of the year is as healthy as another. He argues strongly in favour of marine climates in phthisis, and is convinced that atmospheric moisture, as distinguished from soil moisture, has no influence in generating the disease. Speaking of practical results, he says that the banks, stores, and business houses are largely manned by cured consumptives; and that of the physicians, dentists, lawyers, and clergymen it is safe to say that eight out of every ten came to California for their health.

25. Thesea-voyage in phthisis is advocated by Dr. J. A. Lindsay (*Internat. Journ. of Med. Sci.*, 1890, i., p. 350). The special features of the sea climate are purity and humidity of air, richness in sunlight and ozone, and equability of temperature, hygrometric condition, and barometric pressure. The voyage is to be recommended in phthisis in incipient cases, especially in young patients and the male sex, in cases complicated with nervous break-down, cases in which prolonged sedentary employment in bad air seems to have excited the disease, cases with a moderate amount of anæmia, “lymphatic” and “scrofulous” cases, and those arising from delayed convalescence after pneumonia, pleurisy, or typhoid fever. Hæmoptysis is no obstacle. It is contra-indicated where the digestive system is much broken down, and a rigid dietary is necessary which could not easily be obtained on board ship; in cases with much hepatic derangement; in cases far advanced; and probably in laryngeal phthisis, because the prognosis is bad and

such patients should not be sent far from home, and also because the cold weather south of the Cape would probably be injurious.

Dr. H. M. Doyle contributes to the *Lancet* (1890, ii., p. 226), an able practical article on "Voyaging for Health." His experience has been chiefly gained on board the *Sobraon*, the largest sailing vessel out of London, and specially equipped for invalids. This vessel makes only one voyage in the year, leaving London in the autumn, and making the high latitude passage to Australia to escape the great cold of the Southern Ocean. Melbourne is reached about Christmas, where a stay of 7 or 8 weeks is made; and the return voyage is made by the Cape of Good Hope. A week is generally spent at Cape Town, and a few days at St. Helena; and the vessel arrives in London about the beginning of June. The voyage is so arranged that the passengers are never exposed to cold weather, and can be on deck almost all the time. Sea-sickness is much less troublesome than on steamers; and it was noticed that the more advanced patients were in phthisis, the less they suffered from sea-sickness. Dr. Doyle says that in phthisis great discrimination must be used; that those most likely to get permanent good are patients in whom there are little or no active disease, and no evening rise of temperature, no night sweats, and no tendency to diarrhœa. In them the equable temperature, strongly ozonic atmosphere, and open-air life, work wonders. Irritative hacking cough is generally much lessened or removed, expectoration diminishes and finally disappears, and these patients become stout, strong, ruddy, and active, and return home after the nine months' voyage quite changed beings. On the contrary, those with evening rise of temperature, night-sweats, and tendency to diarrhœa, rapidly become worse at sea. The voyage through the tropics works havoc with them; expectoration and night-sweats increase, cough becomes more troublesome and continuous, appetite fails, slight exertion causes hæmoptysis, and they get weak in spite of every care. In the cooler, drier, and more bracing air of the Southern Ocean they improve slightly, but only temporarily. "Scores of these cases die every year in Australia, far from home and friends, regretting with their dying breath that they had ever left their own firesides on the advice of their medical attendants." Other pulmonary aptients do well at sea; bad recoveries after pneumonia and pleurisy quickly improve; bronchitic, asthmatic, and emphysematous patients do remarkably well. "Catching cold" at sea is almost unknown, even in the bronchitic.

26. Phthisis at high altitudes in Switzerland is shown by Dr. L. Schrötter (*Lancet*, 1889, ii., p. 244) not to be so rare as is

thought. The tables of deaths for the eleven years 1876 to 1886 show that phthisis is endemic in every district of Switzerland. The deaths from this disease are on the whole fewer in the high than in the low districts, but in proportion as the population is agricultural rather than industrial, and not inversely as the altitude.

27. In the **Milroy Lectures on Phthisis** (*Brit. Med. Journ.*, 1890, i, 650), Dr. Arthur Ransome points out the unsatisfactory results of the researches for the purpose of killing the bacillus *in situ*, and considers that the object of treatment should be to strengthen the bodily forces to enable them to deal with the bacillus. He considers that the inhalations of creasote, eucalyptus, etc., tend to check the spread of the disease, and to render the mucous surfaces more healthy. Inhalations of ozonised oxygen have been used with encouraging results at the Manchester Hospital for Consumption. (Pure oxygen, ozonised up to 9 or 11 per cent., can be inhaled in considerable quantities without exciting inflammation.) The inhalations were administered to 15 patients in all stages, with marked improvement in general health, appetite, sleep, freedom from fever, and increase in weight; but the bacilli remained undiminished. The best results yet obtained have been due to abundant fresh air and light, good food with much easily-assimilated fat, and medicines that improve the general nutrition of the body. The one measure that has done most is change of residence—often ascribed to climate, but in a large proportion of cases probably due to removal from an infected area to places where the air is free from active virus; and Dr. Ransome therefore believes that phthisis may be treated with success in Great Britain. He advocates the following precautions against the spread of the disease:—Phthisis should be classed with other infective diseases, and notified to the Medical Officer of Health, and, if necessary, cases should be visited to see if proper care is taken to prevent injury to the public health. In the case of poor patients, the local authority should see to the regular cleansing and whitewashing of premises and disposal of excreta, especially the sputa, and also to drainage and ventilation; and after death take special means for disinfecting the house, bedding, and clothes. To poor patients who cannot work, the workhouse hospital should be offered, and made as little humiliating as possible; while for those above the rank of paupers sanatoriums might be provided by private benevolence.

28. **Egypt** is highly spoken of in phthisis by Mr. F. M. Sandwith ("Egypt as a Winter Resort;" Kegan Paul and Co.,

1889), late Vice-Director of the Sanitary Department of Egypt. He sums up the advantages and disadvantages of Cairo and the Nile as follows :—

Advantages.—A dry and exhilarating air, which itself acts as a tonic, and enables patients to be out of doors in the sunshine all day; an almost complete absence of rain and of fog and of clouded leaden skies; the absence of extreme cold, so that the invalid by closing his windows at sunset need never breathe air colder than 55° Fahr., even without artificial heat; the absence of strong winds at Cairo and Luxor, though on the Nile this is not always the case; the many sources of interest in the country itself; the presence of European luxuries and English society in an Oriental city; the absence of moribund phthisical patients, for whom Egypt is too far from home; and the facilities for outdoor exercise and sport.

Disadvantages.—Its distance—six days or more from England, and three from the south of Europe—so that a sea-voyage is unavoidable; the expense of the journey, of living in Cairo, and of a journey up the Nile; the mosquitoes; a certain monotony of fare of butcher's meat, poultry, and game; and the insanitary state of the picturesque old parts of Cairo.

Patients should leave England at the middle or end of October, so as to arrive in Cairo early in November; some remain here all the winter, others go up the Nile to Luxor in December or January, and return to Cairo at the end of February. In April they should go to Ramleh, and thence perhaps to Italy and the South of France, so as not to reach England before the end of May. With regard to *phthisis*, Mr. Sandwith quotes Dr. C. T. Williams as saying that Egypt gave "by far the finest land result:" 65 per cent. improved, 25 per cent. remained stationary, and only 10 per cent. became worse; and goes on to say that his own results confirm the above figures, as out of 45 cases of undoubted *phthisis*, 69 per cent. improved, 29 per cent. remained stationary, and only 11 per cent. grew worse—including 3 deaths of cases in the last stage of *phthisis*, which died soon after arrival, and should not have been sent from home.

Cases of threatened *phthisis* can be prevented from developing; incipient cases can be improved, and perhaps cured; chronic cases remain stationary, so that life may be indefinitely prolonged; but cases of acute *phthisis*, and of advanced *phthisis* with disease in both lungs and a rise of temperature at night, should not be sent so far from home. One of the earliest signs of improvement is the disappearance of cough and expectoration,

probably owing to the extreme dryness of the air. Digestion, appetite, and general health improve, and weight increases. A tendency to hæmoptysis is no contra-indication. In lung disease beginning as pneumonia, pleuro-pneumonia, or pleurisy, marked improvement occurs; in laryngeal phthisis improvement also may take place, but rather in the general state than locally. Most of the cases of advanced phthisis which have grown worse in Egypt have been complicated with chronic diarrhœa.

Much good is also often done in chronic bronchitis and emphysema, patients getting through the winter with less cough and discomfort, and far less confinement. Asthmatic cases also usually do well in Egypt.

[The book contains much useful information for intending travellers.]

B.—SPECIFIC TREATMENT.

39. Creasote and guaiacol are well spoken of by **Dr. G. J. Karpoff** (*Lond. Med. Rec.*, June 20, 1890), who has used them in 31 cases, given either in the form of a mixture with rectified spirit, or as drops in the proportion of one of creasote and guaiacol to two of tincture of gentian, or in pill, or as Bitchunsky's effervescent water, or by inhalation; in doses varying from 3 grains daily up to 30 and even 60. He finds that both these remedies lessen or remove cough and expectoration, increase appetite and weight, and improve the general health; while bacilli become fewer or even disappear, and improvement takes place in physical signs; that they do most good in uncomplicated phthisis, being useless where renal or gastro-intestinal affections exist and in "fulminant" phthisis. Prolonged treatment is more important than steady increase in dose; and the largest daily dose which can be given without ill effect is from 8 to 12 grains; over 15 grains causing nausea, vomiting, anorexia, and loss of weight, and under 5 grains daily being useless. Guaiacol is to be preferred to creasote, as chemically pure and constant. He concludes that under ordinary conditions this treatment may only ameliorate, and can hardly cure; and that the best results are obtained when it is combined with suitable dieting and change of climate. It is therefore evident that he does not claim for it a true specific power over the disease.

Dr. A. Nobili (*Lond. Med. Rec.*, October 21, 1889) believes that guaiacol (which he prefers to creasote) strengthens the resisting power of the tissues, and destroys the bacilli; and is therefore of great value in tuberculosis, especially early in the disease. Cough and expectoration are almost always much improved; the sputum

contains less lung-tissue and fewer bacilli, and the latter in many cases disappear; fever tends to lessen, sweating ceases in some cases, and in none is profuse; physical signs generally improve, and weight often increases, except in advanced cases with fever, where it lessens. Appetite and digestion improve; and, contrary to Dr. Karpoff's experience above quoted, the drug agrees well with patients with intestinal tuberculosis. The dose is from 5 to 15 centigrammes, given after meals, in wine, bouillon, or sweetened water, and gradually increased till the patient takes 1, 2, or 3 grammes daily.

Professor Sommerbrodt (*New York Med. Rec.*, March 29, 1890) claims to have treated over 5,000 cases with creasote, and is convinced that the drug is not only useful for symptomatic treatment, but also has a specific influence in phthisis by producing a soil that is uncongenial to the bacillus. He quotes Dr. Guttman's observation that this organism can scarcely be cultivated in sterilised serum containing $\frac{1}{1000}$ of its volume of creasote, and is incapable of development in a slightly stronger solution. While Guttman, however, believes that it is impossible to keep the proportion of creasote in the blood as great as 1 to 4,000, which would mean the constant presence in the blood of 20 grains of the drug, in which case the bacilli would probably cease to develop, Sommerbrodt thinks that this is quite possible, and that it can be done by giving a gradually increasing dose till 20 to 25 grains are given daily for months. [It is evident, however, that to give 20 grains daily by the mouth is a very different thing from mixing the same quantity directly with the blood, as in the former case a considerable proportion probably remains unabsorbed. It will be noted that both Nobili and Sommerbrodt advise a much larger dose than Karpoff's maximum of 12 grains daily; and the writer's own experience is that as much as 30 grains may often be taken with impunity, although the beneficial effect is by no means so clear.]

Dr. W. H. Flint (*New York Med. Journ.*, July 26th, 1890) gives creasote by mouth and by rectum, and also as an inhalation, and finds milk an excellent vehicle. He advocates its continuous administration in a maximum dose, which he finds to be usually from 10 to 15 minims daily.

Andressen (*Brit. Med. Journ.*, 1889, ii., p. 1458) concludes that creasote has no specific influence in phthisis, but that it does good by its action on the stomach and intestine, stimulating the weak muscular wall and preventing putrefaction, and thus increasing the amount of food absorbed; while it may arrest the development of bacteria in the intestine, and thus avert the exhausting

diarrhoea of phthisis. In his opinion the antiseptic treatment of phthisis is not yet established.

(See also "Year-Book" for 1890, p. 31, § 28.)

30. Resorcin has been used as an antiseptic in pulmonary tuberculosis by A. Leblond (*Journ. de Méd. de Paris*, 1889, No. 39, p. 578). Fifteen grains of powdered resorcin are heated in a small metal vessel, and the fumes are inhaled; and the treatment may be pushed until the patient almost lives in an antiseptic atmosphere thus obtained. Resorcin is also taken internally at the same time, two or three tablespoonfuls of a solution of ʒijss. in ʒxvi. of syrup of turpentine being given daily. The results are said to be most satisfactory.

31. Balsam of Peru has been administered in phthisis by Opitz (*Wiener Med. Presse*, 1889, No. 50, p. 1982) on the strength of Landerer's observations ("Year-Book" for 1890, p. 37, § 40). The balsam was rubbed up with a solution of gum arabic and chloride of sodium and bicarbonate of soda, and administered twice a week by subcutaneous injection over the first or second intercostal space. In three cases of early phthisis all catarrhal symptoms were gone in between four and five weeks, weight greatly increased, and the bacilli disappeared from the sputum; and after several months nothing could be detected but the signs of a cicatrix. In five cases with large cavities physical signs were but little altered, but cough and sputa diminished, and the general condition improved; while in cases in the terminal stage no good resulted. [Landerer, however, injected the balsam of Peru into the *veins*, on the theory that the particles would pass specially into the tubercular tissues, and there be arrested, and set up inflammation that would change the tubercular focus into a solid cicatrix.—*Loc. cit.*]

32. Homeriana is an acrid, irritating oil, the active principle of a plant of the family Polygonaceæ, which grows wild in Russia. Laskoff (*Therap. Gaz.*, November, 1889) has used an infusion or decoction of homeriana in 120 cases of phthisis, with great benefit in 90; fever, night-sweats, cough, and expectoration diminished, and retrogression of the pulmonary lesion occurred even in cases of advanced phthisis.

33. Bichloride of mercury in phthisis.

Dr. J. B. Hall (*Internat. Journ. of Med. Sci.*, 1889, ii., 451) points out that mercury in small doses increases the number of red corpuscles in syphilis, and acts as a tonic in other conditions. Led by the anatomical resemblance of the lesions of tuberculosis to those of syphilis, he has for six years given bichloride of mercury in phthisis, with "surprising" results. He believes that it acts by

its influence on nutrition, and not as a specific by affecting the bacillus; and quotes in proof the experiments of Cornet, of Berlin, who found that mercury, even in poisonous quantities, did not influence the course of artificial tuberculosis. It has failed in Dr. Hall's hands in old cases, and in intestinal tuberculosis, but has arrested the disease in its onset in members of families almost decimated by tuberculosis; and he regards mercury in small doses as the most potent weapon against this disease.

34. The hot-air treatment of phthisis has met with nothing but discredit during the past year.

Dr. Korkunoff (*Lancet*, 1889, ii., p. 1133) tried it in cases where chiefly the upper part of the lungs or the larynx was affected, so as to give the best chance of success to this method, but obtained no good result, although the inhalations were continued for many weeks.

Dr. Robertson (*Brit. Med. Journ.*, 1889, ii., p. 766) in two cases had to stop the treatment because the patients disliked it, and said they caught cold from it; in another, with laryngeal and pulmonary phthisis, the laryngeal trouble was aggravated and anæmia increased, while cough, expectoration, and fever, were unaltered; and in a fourth anæmia became more marked. In none did the bacilli lessen in number.

Dr. Dujardin-Beaumetz (*Lancet*, 1890, i., p. 1334) condemns this method of treatment; and the *British Medical Journal* (1889, ii., p. 1458) points out that U. Mosso and A. Rondelli (*Cent. f. d. Med. Wissensch.*, 1889, No. 38, p. 696) have shown that air at 200° C. is rapidly cooled in inspiration, so that the temperature of the pulmonary tissue near the bronchi is not only not raised, but actually lowered, as compared with the rectal temperature.

Mr. H. H. Taylor (*Proc. Clin. Soc.*, in *Brit. Med. Journ.*, 1890, i., p. 1249) reports four cases treated with inhalations of air at 300° F. In two, the temperature, pulse, and respiration, were not affected, nor was the action of the skin increased; and no definite result was obtained. In two cases of pulmonary cavity which had been tapped and drained, and where the communication between the mouth and the cavity was free, the following observations were made, to determine whether heated air went beyond the bronchi. In each case a thermometer was placed in the cavity, and air at 300° F. was inhaled; in one case the temperature rose 1° F., and in the other not at all. Hence it appears that hot air inhaled is quickly cooled to the normal temperature of the blood, and never reaches the smaller tubes above that temperature; and that, therefore, the theory of this method of treatment is unsound.

Dr. W. G. Thompson (*New York Med. Rec.*, April 26, 1890) sums up as follows the results of his experiments on animals:—The continued inhalation of air at a temperature of 200° or 300° F. at the nose sometimes does not raise the temperature of the lungs at all, even when inhaled for an hour or more; while in others there may be a rise of from 4° to 6° F., due to causes other than the entry of hot air into the alveoli. The temperature of the trachea rises only from 4° to 7° F. Similarly, cold air does not affect the temperature of the trachea or lungs, and is equally useless as an inhalation for any clinical purpose. In view of the statement that a temperature of 102° F. retards the growth of the bacillus, he further points out that the normal temperature of rabbits is 102.5°; of guinea-pigs, 103°; and of pigeons and fowls, 108°—in spite of which, all these animals are readily affected with tuberculosis.

And, finally, Dr. Schrwald (*Bulletin Gén. de Thérap.*, July 3, 1890) proves by experiments on animals that dry air at a temperature of 662° F., inhaled through the nose continuously for an hour and a half, raises the temperature of the lungs only about 1½° F.; that an equal rise of temperature may be obtained by the inhalation of ordinary air at the ordinary temperature, if respiration is more vigorously performed; and that, as such an acceleration of respiration occurs when hot air is inhaled, the rise of temperature of the lung may be attributed to this increased functional activity; that when air penetrates directly into the trachea, which is much more sensitive than the mouth and nose, tolerance ceases when the temperature of the hot dry air exceeds 176° F.; that, as the result of such direct entry of hot air into the trachea, respiration is accelerated to 144 or more in the minute, and that during this time the temperature of the lung does not rise more than about 1° F. He points out that the above observations are in keeping with much other evidence, and is of opinion that the treatment of phthisis by inhalations of hot air should be finally abandoned.

35. Inhalations of hydrofluoric acid in phthisis have similarly failed to maintain their position. Brunet (*Thèse de la Faculté de Méd. de Paris*, 1889) records the result of this treatment in fifty cases in all stages of the disease. Appetite increased in all; but diarrhœa never diminished, and sometimes set in; night-sweats lessened in some of the earlier cases, but never ceased; fever was not lessened, but sometimes increased; hæmoptysis appeared to be directly induced; and dyspnœa and cough were not influenced.

36. Experiments on the treatment of tuberculosis by inhalations and sprays have been made upon monkeys and men by Drs. H. Gibbes and E. L. Shurly (*Internat. Journ. of Med. Sci.*, 1890, ii., p. 37). They found that sulphuretted hydrogen was worse than useless; that it was fatal to monkeys when inhaled in the proportion of 1 to 500 of air for more than about three minutes; and they suggest that this may be the explanation of some of the sudden deaths that occurred during the use of the "Bergeron method." Chlorine gas was useless, and tended to increase bronchial catarrh; iodoform was similarly inert, and it was noted that all the monkeys treated with it showed fatty degeneration of the liver; creasote, turpentine, thymol, and eucalyptus, were of service only in destroying any fœtid odour from the bronchial tubes. Creolin in spray gave good results; but the most promising was bichloride of mercury, from one-half to one or two ounces of a 1 in 3000 solution being used as a spray for each inhalation; and biniodide of mercury used similarly also produced good effects, although it sometimes caused diarrhœa and epigastric distress.

37. Intra-pulmonary injections in phthisis do not meet with increased support. Fernet (*Med. Chron.*, May, 1890) considers that these injections may do good in the initial period of phthisis, before the lesion becomes pronounced and the general nutrition is influenced. His aim, however, is not to destroy the bacilli by antiseptic solutions, but to favour cicatrisation of the infiltrated tissue. In four patients he made 41 intra-parenchymatous injections of *naphthol*, *camphor*, and *boraphthol*, in the first interspace—one or two each week. In 22 injections no discomfort resulted; but in the others there were slight pain in respiration, pain in the arm or along the cubital nerve, paroxysms of cough, and hæmoptysis slight and of short duration. Temporary pneumothorax occurred in one case. Three of the patients distinctly improved; but the fourth, in whom a cavity existed, was not benefited.

Iodoform has been injected into the lung by Professor Tillmanns (*Brit. Med. Journ.*, 1890, i., p. 1363), through incisions in the intercostal spaces. The results have not been definite, but have encouraged him to further treatment by this method. [It must be noted, however, that both the above observers are acting in opposition to the principle that has been already established, that the material injected must be non-irritating. *Iodoform* has been given up on this account. (See "Year-Book" for 1890, p. 34, § 32.)]

Creasote by intra-pulmonary injection is condemned as useless

or harmful by Flint (*New York Med. Journ.*, July 26, 1890) and Andreesen (*Brit. Med. Journ.*, 1889, ii, p. 1458); hæmoptysis and other complications may be induced by it.

38. Experiments on the treatment of tuberculosis.

Professor Koch communicated an important paper on this subject to the International Medical-Congress at Berlin, which is published in the *British Medical Journal* (1890, ii, p. 380). He thinks that investigators have gone the wrong way to work by beginning with experiments on man; and hence "everything, from benzoate of soda to the hot-air treatment, has proved to be a delusion." First, experiments should be made on the parasites themselves in their pure cultures; next, these observations should be tested on animals; and only then, if successful thus far, should they be tried on man. Proceeding thus, he finds that not a few substances, even in very small doses, hinder the growth of the bacillus. More than this a remedy cannot do; it is not needful that the bacillus should be killed in the body, it is enough if its multiplication is prevented. The following check its growth in the test-tube:—A number of ethereal oils; amongst the aromatic compounds, β naphthylamin, paratoluidin, xyloidin; some of the tar dyes—*e. g.*, fuchsin, gentian violet, methyl blue, chinolin yellow, aniline yellow, auramin; among the metals, mercury as vapour, silver and gold compounds. The compounds of cyanogen and gold surpassed in their effect all other substances, and even in a dilution of 1 to 2,000,000 checked the growth of the bacillus. *All these substances, however, remained absolutely without effect if tried on tuberculous animals.* Koch states that he has at last found a substance which has the power of preventing the growth of the bacillus, not only in the test-tube, but in the body of animals; but, although his researches have already lasted nearly a year, they are not yet complete. And he says no more than that guinea-pigs, which are extraordinarily susceptible to tuberculosis, under the influence of this substance cease to react to inoculation of tuberculous virus; and that in guinea-pigs suffering from general tuberculosis, even to a high degree, the morbid process can be brought to a complete standstill without the body being in any way injuriously affected. If Koch is able to substantiate this statement, its importance cannot be over-estimated.

Koch's observations on the effect of silver and gold compounds are supported by a communication made by a chemist named Reuter to the Lower Austrian Industrial Union in April last (*Lancet*, 1890, ii, p. 458). As director of great factories of metallic wares, Reuter specially noted that where metal was

galvanically gilded or silvered employes with consumptive symptoms, and even hæmoptysis, found marked relief in their work, and improved so rapidly that in a few weeks their health was restored. He found his observations confirmed by the testimony of work-people of all ages in these establishments; old and young, with the well-known symptoms of pulmonary phthisis even at an advanced stage, rapidly recovering as they continued at work from week to week. By further investigation he satisfied himself that the healing virtue resides in the prussic acid generated especially in those workshops where "cyan-metals" dissolved in "cyan-kalium" are used. This conclusion, which was made public prior to Koch's communication, is at variance with the latter, in that Koch has not found the compounds of silver and gold to have any curative effect in tuberculosis in animals.

39. Koch's announcement has led to the publication by Drs. J. Grancher and St. Martin (*Brit. Med. Journ.*, 1890, ii., p. 514) of the results of experiments on rabbits on *protective inoculation* in tuberculosis. These animals were chosen because in them there can be produced a tuberculosis which kills rapidly and at almost a fixed date, with constant lesions, and defies all treatment. Tuberculous cultures were prepared from the spinal cord of rabbits dead from the disease, after the manner of Pasteur's treatment for hydrophobia; nine degrees of attenuation were obtained, the last four being such that the cultivation remained sterile. Injections of these were made, beginning with the weakest, and gradually passing to the more and more virulent; and it was found that in most cases the animals thus treated developed a power of resistance which repelled fatal infection from a virus so lethal that fresh animals quickly succumbed to it. The authors consider that they have succeeded, on the one hand, in conferring on rabbits prolonged resisting power against the most certain and rapid experimental tuberculosis, and, on the other, in securing an immunity against the disease, the duration of which remains to be determined.

Since the above was written, Koch has published his "Further Communication on a Remedy for Tuberculosis" (*Deutsche med. Wochenschr.*, Nov. 14, 1890, published in the supplement to the *Brit. Med. Journ.* of the same date). The following abstract is brought down to December 1.

Professor Koch begins by stating that his research is not yet completed, and that he is therefore unable to make known the origin and mode of preparation of the remedy. The latter is a brownish, transparent fluid, which does not readily decompose.

For use it must be diluted, and is then liable to become turbid and unfit for use from bacterial growth. To prevent this, the diluted liquid must be sterilised by heat and preserved under a cotton-wool stopper; or it may better be prepared with a half per cent. solution of phenol. Fresh solutions are preferable, as both frequent heating and addition of phenol weaken the effect. The remedy must be injected subcutaneously, as no results follow its administration by the mouth. A special syringe is recommended, which can be kept aseptic by absolute alcohol; and abscess has never followed its use. The injection is best made between the shoulder-blades or in the lumbar region, as here it causes the least local reaction, and is almost painless.

In health.—While a guinea-pig will bear 2 c.cm., or even more, without any sensible result, a dose of 0.25 c.cm. produces an intense effect on a full-grown man. Three to four hours after the injection there came on pain in the limbs, fatigue, tendency to cough, and dyspnoea, which speedily increased. The fifth hour was occupied by a violent attack of ague; at the same time vomiting occurred, and the temperature rose to 39.6° C. After twelve hours all these symptoms abated; the temperature fell to normal by the next day, but a feeling of fatigue and pain in the limbs lasted for a few days, and for exactly the same time the site of injection remained painful and red. In health, the smallest amount that produces any effect is about 0.01 c.cm. (1 c.cm. of the 1-in-100 solution), which usually causes only slight pains in the limbs and transient fatigue, although sometimes the temperature rises to 38° C.

In all diseases other than tuberculosis the effect is the same as in health.

In tuberculosis the same dose of 0.01 c.cm., which in health has practically no effect, causes a severe general as well as local reaction. (To children aged from 2 to 5 years 0.001 c.cm. was given, and to very delicate children only 0.0005 c.cm.) The general reaction consists in fever, generally ushered in by rigors, and reaching 39°, 40°, or even 41° C., accompanied by pain in the limbs, cough, great lassitude, and often vomiting. In several cases slight jaundice occurred, and occasionally an eruption like measles on the chest and neck. The symptoms usually begin four to five hours after the injection, and last twelve to fifteen, but sometimes appear later and run a less marked course. As soon as the attack is over the patient generally feels better than before it. The local reaction can be best observed in lupus. In a few hours, usually before the initial rigor, swelling and redness of the lupus spots commence, and increase during the fever,

sometimes to such a degree that the diseased tissue becomes brownish or necrotic in places. After the subsidence of the fever, the swelling gradually lessens, and disappears in a few days. Serum exudes from the lupus spots and dries into crusts, which fall off after two or three weeks, and sometimes after one injection only leave a healthy red cicatrix behind; but usually several injections are required for the complete removal of the lupus tissue. It is specially important to note that the changes described are exactly confined to the parts of the skin affected with lupus. In tuberculosis of the glands, bones, joints, &c., swelling, increased sensibility, and redness of the superficial parts, are observed. In pulmonary tuberculosis the local reaction is not so apparent as the general, unless it is expressed by the increase of cough and expectoration after the first injections.

The method is of the greatest *diagnostic* value; by its aid any case of tuberculosis, whatever the nature of the local lesion, will be recognised with ease and certainty, and the question as to complete recovery in any case will be at once decided.

The *effect* of the remedy is to kill, not the bacilli, but the living tuberculous tissue only; it has no influence on dead tissues, such as cheesy masses and necrotic bones, or even on tissue that it has itself made necrotic. In any such masses of dead tissue living bacilli may still exist, and are either thrown off with the dead tissue, or may possibly enter the neighbouring still living tissue. Hence it follows that every effort must be made to remove as soon as possible—perhaps by surgical interference—the tuberculous tissue that the treatment has killed; and where the dead tissue can only be thrown off slowly the neighbouring living tissue must be protected from fresh incursions of the bacilli by continuous injections.

The *dose* can be rapidly increased up to five hundred times the original amount in about three weeks, probably because at first there is much living tuberculous tissue, so that a small dose causes a strong reaction, while with each succeeding injection less tissue remains to be acted upon and, therefore larger doses are needed to produce the same amount of reaction as before.

When the tuberculous patient has reached the point where his reaction is as feeble as that of a healthy man, it may be assumed that all the tuberculous tissue has been destroyed. The treatment must then be continued by slowly increasing doses, with interruptions, in order that the patient may be protected from fresh infection while bacilli are still present in the organism.

Results of treatment.—(1) In *lupus* the full dose of 0·01 c.cm. was injected from the first. A week or two after the reac-

tion had ended the same amount was injected; and this was repeated till the reaction became gradually weaker, and then ceased. In two cases of facial lupus complete cicatrisation ensued after three or four injections; the other cases improved in proportion to the duration of the treatment. All the patients had for many years been treated unsuccessfully by other methods.

(2) Tuberculosis of *glands, bones, and joints* was similarly treated, by large doses at long intervals; and, as in the lupus cases, a speedy cure followed in recent and slight cases, and slow improvement in severe cases.

(3) In *phthisis*, patients are much more sensitive to the remedy than in surgical tuberculous affections. Almost all reacted strongly to 0.002 or even 0.001 c.cm.; but from this the dose could be quickly raised to as much as in other cases. In phthisis a daily injection of 0.001 c.cm. was given till no reaction occurred; then one of 0.002 c.cm., till this was borne without reaction; and so on, rising by 0.001 c.cm., or at most 0.002 c.cm., at a time to 0.01 c.cm. In cases of great debility this mild course was imperative; but stronger patients were from the first treated partly with larger doses, partly with rapidly repeated doses, and good results were more quickly obtained. Usually cough and expectoration increased a little after the first injection, then grew less and less, and in the most favourable cases disappeared; the expectoration also became mucous instead of purulent. Bacilli usually only decreased when the sputa were becoming mucous; they then from time to time disappeared, but were again observed occasionally till expectoration altogether ceased. Simultaneously weight increased and night-sweats ceased. In from four to six weeks first-stage cases of phthisis lost all symptoms of disease, and might be pronounced cured; patients with cavities not too far advanced much improved, and were almost cured; while only in those with many large cavities could no objective improvement be noted, though even in them the sputa lessened and the subjective condition improved. Even in advanced phthisis patients were benefited for a time—an indication that in them the tuberculous disease is influenced as in the others; but the necrotic masses of tissues with the secondary suppuration process cannot be removed.

It remains to be proved, first, whether the cure is lasting; and, secondly, if so, whether immunity against future attacks is conferred.

The communication ends with a warning against the indiscriminate use of this new method of treatment, and a caution as to the paramount importance of the early diagnosis of

tuberculosis, in view of the fact that "the most important point to be observed in the new treatment is its early application."

Up to the date above mentioned there is a general concurrence of opinion on the part of those who have conducted and witnessed this method of treatment (*Brit. Med. Journ.*, Nov. 22 and 29, 1890, and *Lancet*, *ibid.*) that Koch's statements as to the immediate effect of the injections are fully confirmed; that is, that the injection is followed by the general reaction detailed by him, and also by a local disturbance which accords with his description. The local effect has been most marked in lupus, but also very distinct in disease of glands, bone, and joints; while in phthisis, although the local result cannot be so closely observed, there is evidence (Fraentzel, Levy) that decided improvement takes place in early cases—appetite improving, weight increasing, and night-sweats disappearing—while, although for some time after the injection the sputum may increase in amount, the bacilli tend to disappear more or less completely; according to Fraentzel, they become stunted; while Vienna observers state that the beaded forms are met with in place of the rods.

It is insisted that wherever the lung disease is advanced or extensive, the greatest care is needed, as in advanced cases of phthisis death has already occurred within twenty-four hours of inoculation owing to the violence of the general reaction; but it is not so clear that the death of a child with tubercular meningitis was due to the treatment.

The injection quickens the pulse and tends to make it soft, dicrotic, and in some cases so weak that free stimulation is needed to ward off collapse.

Relapse is said to have occurred already in some of Bergmann's cases, and it is stated that in a case of lupus under Levy's care the disease recurred with great intensity a fortnight after the discontinuance of the injections. It is evident that a long period must elapse before any definite conclusions can be drawn as to the ultimate value of this method of treatment.

VI.—THE TREATMENT OF THE NIGHT-SWEATS OF PHTHISIS.

40. Camphoric acid is well spoken of by Dr. Leu (*Wien. Mediz. Blätt.*, Feb. 6, 1890). It is obtained by oxidation of camphor by an acid, is slightly soluble in water, and freely so in alcohol. It is best given in capsules, in doses of about 30 grains, sometimes from 45 to 75 grains (30 grains at mid-day and 35 to 45 grains in the evening). In thirteen cases, success was complete

in 60 per cent., partial in 18 per cent. Sometimes the good effect was not seen till the evening after, and might persist for several evenings. Atropine in the same patients was found to succeed in only 42 per cent., and to be much less permanent in its effect. No disagreeable symptoms were produced. Externally an alcoholic solution of camphoric acid proved very useful in local sweatings.

Dr. B. Hartlieb (*Wien. Med. Presse*, Feb. 23, 1890) states that, out of thirteen patients, the sweats were entirely removed in twelve; and that 15 grains of the acid at bedtime is usually enough, though 30 may be needed. In one case severe pain was caused over the kidneys, which ceased when the medicine was stopped. One patient vomited a dose of 30 grains, but easily took one of 15.

41. Agaric acid (*Quarterly Therapeutic Review*, Oct., 1889) is a triatomic dibasic acid extracted by Schmiedeberg from the supposed alkaloid agaricine. It is a white, silky, crystalline substance, scarcely soluble in cold water, but readily in boiling. Hofmeister finds that its influence on sweating is not central, but is due to its action on the secretory structures themselves. Klemperer tried it with generally very good result in many cases of sweating, even where atropine had failed. No unpleasant symptoms were produced. The dose is $\frac{1}{2}$ grain in pill, given about six p.m.; and as many as five pills may be taken if necessary.

42. Potassium tellurate.

Dr. E. Neusser (*Wiener klin. Wochenschr.*, June 5, 1890) has found this very useful in the night-sweats of phthisis, in doses of $\frac{1}{2}$ grain in pill, though some patients may need as much again. The only toxic effects met with are symptoms of moderate gastric disturbance. An objection to its use is the strong odour of garlic imparted to the breath, but this is not usually perceived by the patients themselves.

43. The *ice-bag* is recommended by Rosenbach (*Intern. Journ. of Med. Sci.*, 1889, ii., p. 405). Placed over the abdomen for several hours at night, it is stated to be successful in checking sweating where other remedies have failed, and its continued use is well borne.

VII.—DISEASES OF THE PLEURA.

44. Paracentesis in pneumo-thorax.

Dr. Ewart (*Brit. Med. Journ.*, 1889, ii., p. 1098) considers this operation advisable in three classes of cases: where dyspnoea is urgent, and it may afford relief, although perhaps only

temporary ; where prognosis is doubtful, and the operation may determine whether the perforation is healed or not, and whether it is large or small ; and thirdly, where a previous attempt has shown the perforation to be either small or valvular, the operation should be repeated after the lung has had sufficiently long physiological rest.

Dr. W. A. E. Waller (*Lancet*, 1890, i., p. 292) reports a case of apparently uncomplicated pneumo-thorax in a healthy man, probably traumatic, where there was much dyspnoea. An ordinary hydrocele trocar was inserted in the ninth space, when much air escaped, but no fluid ; the dyspnoea was at once relieved, and the patient recovered. (See also "Year-Book" for 1890, p. 42, § 59.)

45. The salicylates in pleurisy.

Professor Stiller (*Brit. Med. Journ.*, 1890, i., p. 808) has noted striking decrease of the effusion and rapid absorption from the daily administration of from 3 to 4 grammes of sodium salicylate. The result is so marked as even to be of use in diagnosis as excluding the presence of pus. The primary effect is on the kidneys, in increasing the secretion of urine ; in one case the amount of urine increased under this drug from 650 to 2,000 or even 2,300 cubic centimetres.

Rosenbach (*Berl. klin. Woch.*, Sept. 15, 1890) claims to prove that while the iodides given by the mouth are never found in the fluid of serous effusion, the salicylates on the other hand always reach these effusions, and should therefore be used in preference to promote absorption. It is not evident, however, that the salicylates necessarily promote absorption because they penetrate into serous inflammatory effusions ; and if Stiller is right, their action is upon the kidneys as diuretics.

46. The admission of aseptic air into the pleura.

Dr. T. Palm (*Brit. Med. Journ.*, 1890, i., p. 1245) urges that when aspiration causes distress or dyspnoea, aseptic air should be admitted till the pressure is relieved ; and argues that in this way all the fluid may safely be evacuated by aspiration, and replaced with air, which is much more readily absorbed.

47. The injection of saline fluid is recommended by Lewaschew (*Int. Med. Congress*, in *Berl. klin. Woch.*, August 11, 1890) with the same object. The serum may thus be replaced by the "physiological solution" of salt, which is very readily absorbed. Fürbinger and Guttman were of opinion that this only showed what the inflamed pleura would stand in the way of unnecessary interference.

48. Early exercise is advocated by Dr. Vincent D. Harris (*Brit. Med. Journ.*, 1890, i., p. 1061) in the post-operative treatment of pleuritic effusion. The patient should be got out of bed as soon as possible, and into the open air. Thus convalescence is cut short, and if there is an open wound the discharge is lessened. Early after aspiration or syphonage, and as soon as the daily discharge is about half an ounce after free incision, the patient should expand the chest by regular and frequent, but moderate, dumb-bell exercise, or by drilling. The best results may thus be obtained; the extraordinary muscles of respiration are called into play, the lung expands more completely, and the cavity of the chest has a better chance of regaining its normal size.

49. The treatment of empyema.

(Abstract of a discussion at the Ninth Congress of International Medicine at Vienna, April 15 to 18.—*Boston Med. and Surg. Journ.*, May 15, 1890).

Immermann stated that the indications were:—1. To evacuate pus already formed. 2. To prevent its reproduction. 3. To re-establish the normal conditions of the respiratory apparatus. Spontaneous absorption of pus is rare, but may occur in metapneumonic empyema, where only micrococci are present; but when other pyogenic microbes exist (streptococci, staphylococci, bacillus tuberculosis) absorption will not occur, on account of the resistant vitality of the latter. Here the pus must be freely evacuated, and the pleural cavity must be kept empty and aseptic. He believed Bülow's method of drainage by permanent aspiration to be the most rational. A rubber tube filled with an antiseptic fluid is introduced well into the pleural cavity through a canula, and its outer end is immersed in water; thus the syphon aspirates the pus and favours expansion of lung. This is especially indicated in bilateral empyema, where a double fistula cannot be made. In metapneumonic and in putrid empyemata a free opening is better.

Schede believed that treatment by excision and resection was the only treatment always useful and never injurious. **Fräntzel** usually preferred the radical operation, but syphonage was better than simple puncture or incision. **Curschmann** was satisfied with Bülow's method, but **Leyden** found it very difficult to carry out; **Ewald** believed in the radical method of free evacuation and drainage; **Ziemssen** for more than ten years had treated all cases by incision and resection; and **Mosler** had obtained uniformly good results by free incision without resection.

(See also "Year-Book" for 1890, p. 43, §§ 61 and 62.)

50. Free opening in double empyema.

Mr. J. H. Morgan (*Lancet*, 1890, ii., p. 124) records a case which is of great importance, as being directly in opposition to the usually received views respecting the physiology of the thorax, and as a contradiction of the rule that a free opening can exist in only one pleural cavity at a time. A boy, aged six, attacked by pneumonia eight days before admission, was found to have fluid on both sides of the chest, the left side being dull everywhere below the second space. Eight ounces of serum were withdrawn from this side by aspiration; fourteen days later 22 ounces of pus were removed from the right side in the same way; and two days after 4 ounces from the left. A week later the left pleura was freely opened after excision of a rib, and a very large quantity of pus escaped; and the left lung expanded till it occupied the greater part of the cavity. Twelve days after the opening of the left pleural cavity a similar operation was performed on the right side, and a very large quantity of pus was evacuated. The patient rapidly made a complete recovery, and by the end of a month after the second pleura was opened the sinuses were both closed, and both lungs occupied their normal space.

An illustration in harmony with the above is afforded by a case reported by Mr. F. Marsh (*Brit. Med. Journ.*, 1890, i., p. 1368). In operating for enchondroma, a portion of implicated pleura three inches by three was excised. With each movement of inspiration and expiration the exposed lung moved to and from the anterior chest-wall, through a space of at least three inches, the amount of movement varying with the depth of respiration from an inch up to actual contact with the chest-wall; in fact, great care was needed to avoid including the lung in the sutures closing the wound. Recovery with a normal lung took place.

51. The surgical treatment of tuberculosis of the lung and pleura.

Professor Tillmanns, of Leipzig (*Brit. Med. Journ.*, 1890, i., p. 1363), makes a valuable contribution to the surgery of the chest. A patient who had suffered from fistulous empyema for 2½ years came under his care in April, 1888, apparently in the last stage of phthisis; with the left lung markedly phthisical, the left pleura firmly adherent in its upper part, and numerous bacilli in the sputum. Several fistulae traversed the left front of the chest-wall, which was also the seat of tubercular disease. An extensive resection of ribs proving unavailing, on May 27th the front of the left chest-wall was resected *in toto* (ribs and soft parts), from the second to the sixth rib, and laterally for an extent varying from 5 centimètres above to 12 below. The

whole left pleura was highly tubercular ; as was also the lung, which was the size of a man's fist, and firmly adherent at the level of the first rib. The left lung was then partly covered by a skin-flap taken from the thorax, and the pleura was energetically scraped with a sharp spoon, and stuffed with iodoform gauze. After repeated previous scraping with the spoon, on June 22nd the left pleura was converted into a cutaneous cavity by transplantation of skin according to Thiersch's method. The left lung shrank steadily, and the tubercle of which it was the seat hence underwent spontaneous cure. The patient was discharged well on July 23rd, 1888, and has remained in perfect health up to the present time. The left lung is now entirely shrunken up, and can be felt behind the flap of skin which partly covers it ; the right lung is absolutely healthy. The strength and movements of the left arm are unimpaired.

In suitable cases the above operation may be modified by turning back a pedunculated flap of skin and bone, and afterwards, when the disease of pleura and lung is cured, replacing it. Or after removal of the ribs the soft-tissue flaps may be united to the pleura by compression after the pleura and lung have had adequate local treatment.

Tillmanns thinks that this case teaches how tumours of the pleura and lung may be best removed ; the pleura and lung should be first exposed by total or temporary resection of the chest-wall, and later on, by a second operation, the diseased lung, by this time collapsed, should be removed, and the tumour extirpated or destroyed with the thermo-cautery.

DISEASES OF THE NERVOUS SYSTEM.

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THE therapeutics of nervous disease in the past year, as evidenced by the published literature of the subject, has principally dealt with two large and important subjects—the treatment of locomotor ataxia and the treatment of insomnia. Both these subjects have had a fairly thorough investigation, and some undoubtedly good results have been obtained. In the various other departments of nervous disease little has been done which is new. Many papers, for instance, have been written on hypnotism, but hardly any definite progress has been made. Again, massage and electricity, as applied to the treatment of disease, have found few exponents, and the number of new books published has been unusually small. It is probably more the case in nervous affections than in any other class of diseases that “fashionable” remedies are brought forward and apparently thrive, but only for a time, so that it behoves all careful observers to use the greatest caution in estimating the evidence as to cure brought about by any particular line of treatment.

I.—THE TREATMENT OF LOCOMOTOR ATAXIA AND OTHER CHRONIC NERVOUS CONDITIONS.

As we have just remarked, a large number of investigations have been conducted as to the best method of treatment in locomotor ataxia. We have given these observations at some length, in order that the reader may judge for himself as to the relative merits of the various methods. As regards suspension, it will be seen that the most diverse opinions prevail as to its mode of action, some saying that the cord is lengthened, others that it is



relaxed; others, again, that no change occurs in the cord, and that the results are purely the result of "suggestion." We can probably affirm that suspension is not a cure for tabes, but that it relieves certain symptoms few can doubt; these symptoms, however, are chiefly those of a subjective nature, while the more purely physical signs of the disease remain unchanged. We should like to direct attention to the new methods for applying suspension, or for obtaining the same result without suspension, especially the forced flexion method of Bonuzzi, and suggest that further trials of them should be made. Even granting that suspension only acts by "suggestion," still if it is found to relieve disagreeable symptoms we think that it should be employed in tabes, but at the same time the greatest care must be taken to avoid the occurrence of unpleasant after-effects.

1. The suspension treatment of locomotor ataxia and some other chronic nervous affections.

Saundby (*Brit. Med. Journ.*, 1889, ii., p. 602) has given this method a further trial. He uses the iron tripod and pulley with a bar attached, suspending the patient by the chin and occiput; arm-straps being used in one case only. He reports six cases, in all of which the suspension was from fifteen to thirty seconds at first, the time being increased daily until four minutes was allowed. The length of time, however, was not compulsory, but the patient was let down if he wished by signalling. During the first and second suspensions the toes might be allowed to touch the ground. The ascent and descent were made very gradually, and without jerking. One man only had bad symptoms, being pale, sick, and faint on one or two occasions, but recovered in half an hour. Several of the men at times felt singing in the ears, stretching in the spine, or a warm numbness down the back, but no actual pain. Saundby concludes from these cases that it cannot be definitely stated that any case improved by the suspension; in one case only was the patient able to walk better, but whether this was due to the suspension is doubtful.

Ladame (*Rev. Médic. de la Suisse Romande*, 1889, p. 347) has made 282 suspensions in 16 cases of spinal disease, 15 being tabes dorsalis (12 men and 3 women), and 1 being Friedrich's ataxia. The greatest number of sittings in individual cases varied between 29 and 35. The sittings were repeated every second day, the duration being two to three minutes in patients weighing 80 to 100 kilos., and four or more minutes in those weighing 50 to 70 kilos. In all the cases Dubois' apparatus, with a weighing-machine, was used. Ladame fully confirms Motchütkovsky's and Charcot's statements as to the efficacy of the method. In several

patients there was a distinct improvement in the lightning pains, the urinary troubles, and the insomnia; and in two cases, Romberg's sign (swaying movements on closing the eyes), the paræsthesia of the feet, and the coldness of the extremities decreased. In other cases the results were nil. As a rule, there was at first rapid amelioration, followed by a slow but steady and apparently secondary improvement after twenty to thirty sittings. He noticed no disagreeable symptoms, but says the method requires watching.

Churton (*Brit. Med. Journ.*, 1889, ii., pp. 818 and 920) has tried suspension in two cases without result, and thinks that the method will be found useless. He further points out that tabes occasionally spontaneously recovers after many years, as mentioned by the Paris correspondent of the *Brit. Med. Journ.* (1887, ii., p. 798). He has also seen two cases of his own almost recover without suspension.

Althaus (*Brit. Med. Journ.*, 1889, ii., p. 872), criticising Churton, speaks strongly in favour of the method. He mentions a remarkable case where suspension was commenced in March, 1889. There was improvement on the third suspension. Altogether thirty-three suspensions were given. The knee-jerk had been absent from November, 1885, but re-appeared in June, 1889; the walking and power in the hands recovered, and finally all the symptoms of tabes disappeared.

At the Thirteenth Congress of the Italian Medical Association, held at Padua from the 22nd to the 27th September, 1889, **G. Bianchetti** related his experience of the suspension treatment in tabes dorsalis, and other nervous diseases. Eight ataxic patients (six men and two women) were treated by suspension alone. In three of these cases suspension had to be discontinued, as it produced amaurosis in two cases after five suspensions, and in the other after seven. Visual power was distinctly impaired after each suspension. In four of the remaining five cases "marvellous results" were obtained. The number of suspensions varied from twenty to fifty-two. Lightning pains, gastric and vesical crises, motor inco-ordination, and impotence all disappeared, and the patients gained from three to eight pounds in weight. The vertebral column was measured during suspension, and was found to be lengthened from two and a half to four centimètres. Bianchetti also tried suspension in some cases of spastic paralysis, paralysis agitans, impotence from masturbation, and incipient progressive paralysis, but without any effect.

Marina gave the results of his experience in twenty-one cases of tabes, besides a few of paralysis agitans, etc. In one half of

the ataxic cases, suspension was followed by marked relief, but in the remainder the pains were made worse. He also noticed the bad effects of suspension on the optic nerve, but in one case it seemed to have a good effect on the auditory nerve. Better effects were produced in persons of small stature and light weight. In one of Marina's cases, after fifty suspensions the knee-jerk could, after five or six taps, be produced more violently than in the normal state, though before it had been quite inert (*Brit. Med. Journ.*, 1889, ii., p. 938.)

Garry (*Brit. Med. Journ.*, 1889, ii., p. 1036) gives his experiences from watching this method at the Salpêtrière, and insists on all the details being carried out completely, the toes being off the ground, and the time of suspension being gradually increased. Most of the French patients, again, are in the very early stages of the disease, whereas English patients are generally in the later stages. He admits that in some instances there was no evidence of organic spinal disease, but simply of functional disturbance of the cord. Only the early cases improved in muscular power, but in nearly every case the lightning and girdle pains, with the stomach disorders, disappeared, and the urinary troubles were much improved. There was also a decrease of the cold sensations and paresthesiæ of the extremities. In four of his own cases suspension was useful in three, in the other the results were nil.

Grainger Stewart (*Brit. Med. Journ.*, 1889, ii., p. 1159) has used suspension in five cases of spinal disease, two of which were tabes. There was much improvement in all, rapidly at first, and afterwards more slowly.

Borsari, of Modena (*Rivista Gen. Ital. di Clin. Med.*, Oct. 25, 1889; and *Brit. Med. Journ.*, 1889, ii., p. 1173), reports a case of tabes in which suspension resulted in death. The patient, a man aged forty-five, was in the second stage of the disease, and also suffered from aortic incompetence. After the first suspension, which was carried out with every care and with a suitable apparatus, the patient had momentary anæsthesia in the feet; his face became pale, his eyes glassy, and he complained of vertigo and faintness. In a short time these symptoms passed off. Afterwards he was suspended for short periods on alternate days, though the operation was always followed by increased staggering gait, by convulsive movements of the arms and legs, and by pallor and expression of distress. After three or four sittings there was, however, notable improvement in motor co-ordination. Later on, violent vomiting set in, together with a certain amount of pyrexia, which lasted for forty-eight hours. When the temperature fell to normal he was suspended for the eighth time, the

operation lasting forty seconds, with no untoward result. Soon after the vomiting became worse, and the man complained of intense pain in the epigastrium. This was speedily followed by delirium, with convulsions, ending in coma and death three days after the last suspension. The post-mortem examination confirmed the aortic and spinal diseases, and in addition there were found signs of acute exudative leptomeningitis, cerebral and spinal, the latter being in the cervico-dorsal region. There was no indication that the heart-disease had been aggravated by the suspension. Borsari leaves it to be settled by subsequent experience whether the acute inflammation was set up by the strain of the membranes or not.

Reginald Harrison (*Brit. Med. Journ.*, 1889, ii., p. 1220), at the Medical Society of London, mentioned a case of tabes of two years' duration, in which Charcot recommended suspension. After fourteen suspensions in two months, lasting from 60 sec. to 90 sec. each, all the bladder symptoms were gone, and the patient was able to do his work.

The *British Medical Journal*, in its *Summary* for the year 1889 (p. 1453), concludes, from all the evidence on suspension, that those symptoms most under the patient's will, such as the inco-ordination, the pains, the numbness, the incontinence of urine, are certainly benefited by this treatment, but that the organic symptoms, such as the loss of the tendon reflexes, are not improved. Thus suspension probably only acts mentally. "When the craze for it has died down it will probably cease to be beneficial and will fall into disuse, just as metallotherapy has done." **Haushalter and Adam** (*Progrès Médic.*, 1889, Nov.) agree with the above opinion, and have shown by careful experiments that the lengthening of the vertebral column during suspension is no greater than often takes place physiologically; that even when the vertebral column is stretched, the cord, its nerves and vessels, are not appreciably altered. It has been suggested that the benefit may be due to separation of the vertebræ and general traction and hyperæmia of the cord (Charcot and Motchutkowsky); to anæmia of the cord (Dujardin-Beaumetz), or to tearing down of the adhesions of the meninges. This treatment has been applied to a number of other spinal diseases, such as myelitis, disseminated sclerosis, Frederick's disease, and paralysis agitans, but without much benefit.

Cagney (*Brit. Med. Journ.*, 1890, i., p. 131), before the Roy. Medic. and Chirurg. Soc. of London, attempted to show how suspension acted in locomotor ataxia, and the best method of using it. He denied the possibility of stretching the spinal cord

or nerve roots by suspending the weight of the body from the head or elsewhere. The paper includes measurements and observations on living and dead bodies before and during suspension. In all cases suspension caused shortening of the distance between the first dorsal and last lumbar spines. There was elongation in the cervical region, but this was less than the shortening elsewhere. The anterior surface of the vertebral column was elongated considerably throughout, slightly in the neck, most in dorsal region, but contracted or unchanged in the lumbar. Thus suspension straightens the vertebral curves differently in different regions, and the effect on the cord and membranes would vary in each case according as they lay in the concavity or convexity of a curve. He drew a distinction between the effects on the cord and the membranes. The relaxation of the membranes implied relaxation of the cord, but tension of the former did not necessarily imply stretching of the cord. He concluded:—1. That a total shortening of the spinal canal was obtained by suspension. 2. That in the lumbar region the cord was unaffected or slightly relaxed; in the cervical region the membranes were somewhat stretched. 3. The changes in the dorsal region were the most important, as the lesion was situated there. By stretching this part *post mortem* the bodies of the vertebræ were separated anteriorly, and posteriorly were pressed together, the neural arches and spinous processes were approximated, and so the cord was shortened. This effect was brought about during life, not only by gravity, but also by muscular tension, as the shortening between the spinous processes was greater during life than after death. This relaxation of the cord might act (i) by breaking down adhesions; (ii) by removing impediments to the circulations. The splanchnic nerves were the only nervous structures found to be stretched during suspension, and the reported accidents were probably caused by this. He concludes that muscular tension is a very effectual part of the treatment, and he deprecates suspension by the head, and recommends suspension by the axillæ or suitable gymnastic movements.

In the discussion on the above paper (*Brit. Med. Journ.*, 1890, i., p. 238) Ogilvie said he had found the cord relaxed in the dorsal region, and thought that this allowed the bundles of fibres to be slightly separated, and some adhesions were thus broken down; moreover, some impediments to the circulation were removed. He thought the treatment was no good for the ataxia, but lessened the pains. Fletcher Little said that Charcot insisted on two-thirds of the weight being borne by the axillæ and one-third by the head. Cagney, in reply, pointed out that Horsley some years

ago showed that it was impossible to stretch the cord during life by any manipulation.

Benedikt, of Vienna, gives an account of two patients benefited by suspension. In one case, as the tabes set in with prodromal atrophy of the optic nerve, he gave a favourable prognosis. He does not think that most cases of either locomotor ataxia or general paralysis of the insane are syphilitic, and says that anti-syphilitic treatment often does harm.

Mouisset (*Lyon Médical*, Aug. 11, 1889) in giving his results of suspension, is struck with the almost complete restoration of the muscular sense, and by the constancy with which the bladder and rectum disturbances subsided. In one case incontinence of urine of twelve months' duration was almost cured. Amelioration, as a rule, occurred after six to eight sittings, and increased for about one month, then became stationary. Suspension is usually followed by immediate relief to the spine, which feels freer and more supple. Those subject to head symptoms, particularly vertigo, are made worse by suspension.

Charcot (*Progrès Médic.*, 1890, i., p. 457) reports further on suspension in nervous diseases. Three chief groups of patients have been so treated: (i) Ataxics; (ii) paralysis agitans; (iii) chronic sciatica. Almost all the cases of paralysis agitans have been improved when the disease has been treated during or before its middle period. The general health becomes better, sleep more regular, and the painful stiffness much less. As regards the ataxics, one hundred cases in the middle period of the disease have been thus treated. From twenty to twenty-five have been decidedly improved in all points except the eye symptoms and the knee-jerks. The gait, the pains, and the affections of the genito-urinary system have been improved. In the remaining thirty-five to forty there has been no change. During more than 10,000 suspensions there have only been a few short attacks of syncope, two cases of temporary radial pressure paralysis, and no other accidents of importance. Charcot also quotes **Guttmann's** cases in Berlin. Out of ten cases of tabes, three were unaffected, five were considerably improved, but none regained a normal ocular state or knee-jerk. In seven cases of sciatica, four were treated by suspension only and did not recover completely; three had both suspension and antipyrin, and did recover completely.

Rosenbaum has a larger and more interesting group of cases. During two years he suspended 85 ataxics (2,400 suspensions in all). In 24 there were not frequent enough suspensions to draw any conclusions. In 25 there was some improvement, though it was considerable and persistent only in 5; in 9 the results were

doubtful ; in 27 there were no results. In none of the cases were there any accidents, except two slight attacks of fainting. The favourable results were a better carriage, more sleep and appetite, increased weight and less anæsthesia. The paræsthesiæ and ocular symptoms did not improve. Charcot considers the details of the suspension apparatus important, as enabling the physician to avoid dangers, of which syncope is the chief. The treatment should not be used in cases with cardiac lesion. In weak pale subjects the lifting from the ground should be most gentle and gradual, and the time of suspension not more than half a minute at first, extended very gradually to three minutes. If twenty to thirty trials produce no good effect, or no increasing good effect, the treatment should be given up at least for two months.

Bernhardt (*Berl. klin. Woch.*, 1889, No. 24, p. 628) has used 265 suspensions in 21 ataxics. More than half his cases were benefited, but in one case on two occasions epileptiform attacks followed the suspension. **Brunn**, of Hanover (*Berl. Med. Woch.*, No. 27, p. 628), records a similar accident, but since then he has used the method 150 times in seven ataxics. **Waltzfelder** (*New York Med. Record*, 1889, p. 629) reports six cases where the treatment relieved the inco-ordination.

Telssier (*Lyon Médic.*, July 14, 1889) gives two cases of rapid amelioration of the ataxia and the pains after suspension, though one case had transitory albuminuria after each séance. **Stewart** (*Philadelphia Med. News*, June 1, 1889) has thus treated eight ataxics (with distinct relief, especially in the chronic cases), three cases of spastic paraplegia (with relief in two), and one case of dorso-lumbar meningo-myelitis (with improvement in the paralysis and general state).

Haushalter and **Adam** (*Progrès Méd.*, 1889, Nov. 2, 23—30) give an account of 260 suspensions in 29 patients, of which 6 were ataxics, 5 cases of myelitis, and others of neurasthenia and hysteria. There was amelioration in two-thirds of the cases of the pain, the sensory disturbances, the ataxia, the genito-urinary troubles, and the psychical symptoms. In 6 men they took 20 measurements of the height of the body and the length of the spinal column, and found :—(1) That after several weeks' suspension the height had only increased insignificantly. (2) During suspension the height constantly lengthened from 1 to 1½ cm. (3) The vertebral column, lengthened in five cases, was shortened in one ; the cervical and lumbar regions lengthening equally, the dorsal shortening. The apparent total elongation was due to the straightening of the curvatures. The effect on the cord and membranes cannot be compared to nerve-stretching. They admit that the method only

alleviates, but does not cure the purely dynamic troubles, and think that suggestion plays the principal part in the result.

Besides the above observations, many other references might be given. **Dujardin-Beaumetz** (*Bulletin de Thérap.*, 1889, July 15, p. 1) says that suspension is not a curative method, but merely relieves certain symptoms. In a discussion at the Medical Society of Geneva (*Rev. Méd. Suisse Romande*, ix., 436, July, 1889) **Appia** noticed good effects in one case. **Reveillod** said he had treated four cases, with relief in three, in one case with rapid diminution in size of a foot affected with severe inflammation and perforating ulcer. The same result he obtained in another patient with perforating ulcer, but without ataxic symptoms. In three cases of impotence suspension was favourable, as also was the case in a patient with neuralgia of the penis, and in another with syphilitic myelitis.

De Renzi (*Riv. Clin. e Terapeut.*, p. 39, Aug. 3, 1889) obtained good results in four out of seven ataxics, in one case of spasmodic dorsal tabes, one of disseminated sclerosis, cure in a case of chronic meningo-myelitis, and improvement in a second case, no result in a case of hæmatomyelia.

Erb (*Berl. Klin. Woch.*, No. 32, p. 756, 1889) in recent cases of tabes only saw relief in three cases, the others being made worse. **Gilles de la Tourette** and **Lagoudakis** (*Arch. de Neurol.*, July, 1889) mention diminution and cessation of the habitual use of morphia in two cases of tabes treated by suspension. **Renaut** (*Lyon Méd.*, p. 87, Sept. 15, 1889) had a remarkably good result in a man of thirty, tabetic from venereal excess, and in whom the knee-jerk returned after fifteen suspensions.

Russell and Taylor (*Lancet*, Feb. 1, 1890, p. 234) report twenty-one cases of chronic nervous diseases treated by suspension, with the following results:—In fifteen cases of tabes there was practically no change; one case of tabes made distinctly worse; one improved, but relapsed, and one slightly improved; one case of ataxic paraplegia, no change; one case of disseminated sclerosis, no change, and one case of paralysis agitans improved.

2. Modified forms of suspension.

Hurry Fenwick (*Brit. Med. Journ.*, 1889, ii., p. 1220) mentions a case of a man with bladder troubles, loss of sexual power, and other symptoms of tabes dating from 1888. He used a modified form of suspension by directing the patient to hang passively by his hands from a door for a minute morning and evening. In one and a half months the patient thought himself quite well, and the bladder symptoms had almost disappeared.

Bonuzzi (Congress of Ital. Med. Assoc., at Padua, Sept., 1889, and *Brit. Med. Journ.*, 1889, ii., p. 1236) suggests forcible flexion

of the spine as a substitute for suspension in tabes. From experiments made on the dead body he concludes that in suspension the relations of the spinal cord to the vertebral column are somewhat altered, the former being displaced upwards to the extent of from three to four millimètres, while the vertebral column is lengthened to the extent of from one and a half to three centimètres. This elongation, however, is more apparent than real, consisting as it does more in the separation of the spinous processes than of the bodies of the vertebræ. The roots of the nerves, though displaced to a certain extent, do not seem to be appreciably stretched, with the exception of the cauda equina, but there is an increase of tension of the cerebro-spinal fluid. The body as a whole is lengthened during suspension to the extent of from two to three centimètres. Dr. Bonuzzi thinks the good effect of suspension depends on the traction which is thereby applied to the cauda equina, and through it to the whole spinal cord. He maintains that the same effects are produced in a more marked degree by forcible forward flexion of the body with the knees pressed up to the abdomen. By experiments on the dead body, he claims to have proved that in this way a needle run into the spinal cord (the vertebral canal having first been laid open) was drawn downwards for a distance of from eight to twelve millimètres, the cord being at the same time made thinner and more resistant, and the cauda equina very tense. The apparent lengthening of the vertebral column was from six to fourteen centimètres. When the body was forcibly bent forward there was a large outflow of venous blood from the opening in the vertebral canal, showing that there was great pressure on the venous plexuses of the cord. The method was tried in a case of a woman who had suffered from typical tabes for nine years. Flexion was at first kept up for half a minute, the time being gradually increased to three minutes, the method being used on alternate days and carried out two or three times on each occasion. There was marked improvement after three sittings, and the symptoms almost disappeared after eight sittings. She could then stand for half a minute with her eyes shut, without falling. The knee-jerks did not return. No apparatus is required except a towel loosely twisted round the ankles, by which the lower extremities are pulled up while the patient is lying on his back.

3. Hydrotherapy in locomotor ataxia.

A recent work by Leyden on locomotor ataxia is reviewed in the *Therapeutische Monatshefte* for January, 1890, p. 47. In treatment he lays great stress on the use of warm baths of a temperature from 86° to 95° Fahr., the duration of which should

be from five to ten minutes. Three kinds of baths are recommended:—1. The simple warm bath (Teplitz, Wildbad, Gastein, &c.), most suitable in the early stages of the disease. 2. Brine bath, or containing carbonic dioxide (as Rehme, Nauheim, Wiesbaden, Kissingen, &c.), most suitable for advanced cases with much anæsthesia, muscular weakness, and general torpor. For such cases also mud baths, or carbonic dioxide containing iron baths (Cadowa, Franzensbad) are good. 3. Sweating and vapour baths, best in the beginning of the disease, especially when the first symptoms have followed a chill. Leyden considers that nerve-stretching has once for all received its condemnation; he has not the least faith in suspension; of massage he speaks with indifference, and adds that the electrical treatment must not be overrated.

4. Electricity in locomotor ataxia.

Cagney (*Brit. Med. Journ.*, 1889, ii., p. 1092) treated a case of tabes with strong faradic currents (applied with the brush) to the lower limbs and trunk several times a week. It was one of advanced typical tabes. The pains gradually left, the sleep was restored, and the inco-ordination and tactile perceptions were slowly ameliorated. In two months the patient thought himself well, but two years afterwards relapsed to his former state. Several other cases were similarly treated, with relief for a time.

II.—THE TREATMENT OF INSOMNIA.

Very thorough observations have been published on this subject, and several new and important drugs have been brought forward. Of these we consider that chloralamide is, as a rule, by far the best, being almost equal to chloral in its hypnotic effect, and apparently free from the objections to chloral, being in every way an excellent hypnotic. In insomnia from pain, few hypnotics will act unless the pain is at the same time relieved, and here opium and its preparations still stand unrivalled, though antipyrin, from its analgesic properties, will often relieve. Again, in the nocturnal restlessness of cardiac disease, even accompanied by some congestion, very small doses of morphia ($\frac{1}{12}$ to $\frac{1}{4}$ grain) given hypodermically have the best effect. A point often forgotten in the administration of chloral is the fact that small doses of ten or fifteen grains generally merely excite patients, so that in maniacal conditions, ten grains given, say, every four hours, increase and keep up excitement and prevent sleep. It is much better to give chloral in one single thirty-grain dose, avoiding, of course, well-known contra-indications to the exhibition of the drug,

and guarding from cardiac depression by alcohol. Personally, we think, the depressing action of chloral is very much overrated, and, in asylum practice particularly, untoward results are very rarely, if ever, seen, although sometimes enormous doses are administered. Paraldehyde often succeeds where other drugs fail, especially in forms of delirium and mania secondary to alcoholism. In the worst forms of excitement we must resort to hyoscine, but this must be used with the greatest caution, as it is undoubtedly a dangerous remedy. Sulphonal is, in its place, an excellent drug, but the unpleasant after-effects constitute a great drawback to its general use. Urethane, in our hands, has only acted as a feeble hypnotic, but may be used with advantage in simple insomnia.

1. General observations.

One book has been published on this subject during the past year. This is "Insomnia and its Therapeutics," by A. W. Macfarlane, M.D., F.R.C.P., Edin. Medium 8vo, 336 pp., 12s. 6d. London: J. and A. Churchill, 1890. The physiology and pathology of sleep are here fully discussed, and, under disease, the causation, character, and treatment of insomnia connected with it are entered into at length.

Jastrowitz (*Berlin. Klin. Woch.*, 1889, No. 27, p. 624; and No. 30, p. 684) writes of the various treatments of insomnia. He first mentions *alcohol*, only useful in slight forms of insomnia, and to be avoided in persons disposed to alcoholism. *Opium and morphia* are of course excellent hypnotics, but must be used with care in conditions of congestion and weakness of the heart. In children, *bromide of potash* is to be preferred. *Hydrate of chloral* is the strongest hypnotic, but is dangerous in large doses; it is excellent in delirium tremens, status epilepticus, and convulsive disorders. It is, however, to be avoided in cardiac disease, in hysteria, in cases with difficulty of breathing, and in those in whom it produces no preliminary stage of excitement, and does not alter the pupil. *Paraldehyde* is of value in hysteria, alcoholism, acute insomnia, and itching of jaundice, but in long-continued and large doses produces symptoms like alcoholism. It irritates the lungs, and so is contra-indicated in bronchial conditions; it is good in cardiac asthma, bad in emphysema and arterio-sclerosis. It should not be used in chronic insomnia and in conditions of extreme excitement, but is good in insomnia from moral causes and in the restlessness of epileptics. *Amylene hydrate* disagrees with the stomach in many patients, and produces slight swelling of the hands and face. It may be used in all forms of insomnia, and to allay cough. *Sulphonal* acts slowly,

and therefore is useless in acute disease and where there is pain. In pure narcotic strength the hypnotics stand as follows:—Morphia, chloral, amylene hydrate, paraldehyde, sulphonal. If, however, they are arranged in the order of proper hypnotic and non-injurious dose they stand:—Chloral, sulphonal, amylene hydrate, paraldehyde, morphine.

The Therapeutic Committee of the British Medical Association (*Brit. Med. Journ.*, 1890, ii., p. 234) investigated the action of various hypnotics, including sulphonal, paraldehyde, urethane, and chloralamide. Many interesting cases will there be found reported, but no specially new conclusions were arrived at.

A careful paper by Dornbluth (*Therap. Monatsh.*, August, 1889, p. 361) on the means of quietening the insane, consists principally of a clinical study of hyoscine and codeine.

One of the most careful and useful papers of the year is that by Leech (*Brit. Med. Journ.*, 1889, ii., p. 969), on recent hypnotics and analgesics, considering principally the action of urethane, methylal, amylene hydrate, sulphonal, and paraldehyde, as compared with the older hypnotics, such as chloral and morphia. As regards analgesic influence, they possess little, and cannot compare in the slightest with opium and its preparations when pain prevents sleep. In hypnotic potency the order seems to be, sulphonal, amylene hydrate, paraldehyde, urethane, methylal, but none of these equals chloral hydrate in the certainty of its effects. A dose of sulphonal has about the same soporific effect as three-quarters its weight of chloral, and von Mering thinks that half a drachm of amylene hydrate has the same power as fifteen grains of chloral or forty-five minims of paraldehyde. In rapidity of action urethane stands first, and sulphonal the last on the list. The sleep from urethane or methylal is of the shortest duration, and probably that from sulphonal the longest. Deferred action of the drug is oftenest seen after chloral. As regards dangerous effects, chloral is to be specially mentioned, a larger dose than twenty grains having proved fatal under certain conditions. So far as is known, the other hypnotics mentioned have not caused death. Chloral, amylene hydrate, and sulphonal, occasionally cause excitement instead of sleep, but paraldehyde is practically free from this inconvenience; the bad after-effects of sulphonal are well known. Chloral acts as a great depressant, especially on the heart, and also to a less degree on the respiration; this is not the case with any of the newer hypnotics, which is a great point in their favour. In reference to habituation and craving, there is no doubt that the newer hypnotics are much to be preferred to chloral, where the craving often becomes intense; patients, however, often

get quickly accustomed to urethane and methylal, and require gradually increasing doses.

For the treatment of simple insomnia, chloral should never be used unless all other means have failed. Here urethane in doses of from 20 to 120 grains should be given immediately before sleep is desired. The tastelessness of sulphonal recommends it to many. Paraldehyde is much objected to from its taste, and the after-smell of the breath. When insomnia is due to pain there is no hypnotic which approaches opium in value. In febrile conditions chloral is good if the heart is strong, otherwise sulphonal should be used. In cardiac affections, morphine, especially when given by subcutaneous injection, is by far the best soporific; urethane and paraldehyde being often useful. In insomnia from lung affections amylene hydrate will probably be found to be the safest hypnotic. For delirium the newer hypnotics are practically without avail, and chloral and bromide or hyoscine should then be employed. In mental cases Clouston speaks very highly of paraldehyde, which he gives in doses of from one drachm to four or six drachms.

2. Chloralamide.

A large mass of literature on this subject has already been published, and we cannot do better than present our readers with an abstract of the excellent summary given by Leech in the *Medical Chronicle* for Sept., 1889, p. 476, and for April, 1890, p. 42, and June, p. 224, adding such other references as we have been able to find.

This drug was prepared by E. Schering, of Berlin, at the suggestion of von Mering. Reichmann (*Deut. Med. Woch.*, August 1, 1889), in the wards of Professor Riegel (Giessen), and Pieper (*Deut. Med. Woch.*, August 8, 1890), in the wards of Mosler (Greifswald), have observed its effect. It is prepared by combining chloral (CCl_3CHO) with formamide (CHONH_2), and has the formula $\text{CCl}_3\text{CH} < \begin{smallmatrix} \text{OH} \\ \text{NHCHO} \end{smallmatrix}$. It is a colourless crystalline body, soluble in nine parts of water, and in one-and-a-half parts of alcohol. Its taste is slightly bitter, but not pungent.

[It is best given about an hour before bedtime, dissolved in spirit, wine, or beer; many patients complain very much of its nauseous taste.—REP.]

Reichmann gave 45 grains to a dog, producing heaviness but not true sleep. In man 30 grains produced an undoubted effect, but not always a prompt one, and left no unpleasant effects. After 45 grains a much better result was obtained, sleep even being produced in the day-time. It caused sleep in patients

suffering from biliary colic and neuralgia. In some cases headache or weariness were after-effects. Forty-five grains lowered the blood-pressure.

Pieper gave it as a powder, washed down by milk, or as a mixture—45 grains being dissolved in two ounces of sweetened water, containing five drops of hydrochloric acid. Thirty grains produce sleep in two or three hours, 45 grains a sense of weariness and sleep in $\frac{3}{4}$ to $1\frac{1}{2}$ hour. In two patients, the drug being taken at mid-day, sleep lasted four to five hours, and in two others from nine o'clock in the evening till seven next morning, leaving a tired feeling. Seventy-six single doses of 30 to 45 grains were given to twenty-four patients, producing sleep on the average in one hour, which, as a rule, was unbroken and lasted seven to eight hours. Pieper says it is best adapted for insomnia in nervous people, and those affected with a disease of the spinal cord, asthma, subacute rheumatism, and stomach affections not accompanied by much pain. Headache (often present), giddiness, and weariness, may occur the following day. He thought it a better drug than chloral.

Kny (*Therap. Monat.*, August, 1889) gives an account of the physiological and therapeutic action of this drug. In rabbits it is a harmless hypnotic, without such depression of the heart as chloral produces. He gave it to thirty-one patients, and found it to be less energetic than chloral, 30 grains of the latter drug being as effective as 45 grains of chloralamide, its action being also slower than chloral. The unpleasant effects (such as heaviness and bad taste in the mouth) often experienced after chloral, he did not observe after chloralamide; the taste is less unpleasant than chloral. He thinks that it is converted in the blood into chloral hydrate and formamide, but only a small quantity of the chloral comes at one time into action, and formamide, containing the group which stimulates the vessels in the medulla, antagonises the evil effects of chloral on the circulation. As a rule, it acts more quickly than sulphonal. It was good in insomnia from nervous irritation or chronic alcoholism, in some cases of phthisis, heart failure, spinal disease, etc., but where severe pain or cough prevented sleep it was of little service.

Hagen and Hüfer (*München Med. Woch.*, 1889, xxxvi., pp. 513—516) think chloralamide more powerful than chloral. They specially recommend it in cardiac disease; it was less serviceable in phthisis, as it caused malaise on waking. They say that patients do not become accustomed to the drug, so do not require increasing doses.

Lettow (*Inaug. Dissert. Greifs.*, 1889) writes an account of the

drug given per rectum. In 29 cases sleep was produced in an hour, in 23 in two hours, and in 3 in three hours. Sleep generally lasted from four to six hours.

Babow (*Centralblt. für Nervenheilkunde*, August, 1889, No. 15) found this remedy very useful in simple insomnia, in hysteria and neurasthenia, but not efficient in very excited lunatics. He noticed no disagreeable after-effects.

Hagerman and Strauss (*Berl. Klin. Wochen.*, 1889, No. 36) recommend 15 grains as the first dose. They only noticed headache as an after-effect, and thought the drug had no influence on the circulation. In a case of trigeminal neuralgia 15 grains caused sleep, but in a case of sciatica 60 grains were useless.

Halasz (*Wien. Med. Wochen.*, 1889, Nos. 38 and 39) also says it has no bad effect on the circulation, and recommends it for the insomnia even when the heart is weak and irregular. If sleeplessness is due to cough or pain he thinks it is of little service; headache, weariness, and giddiness may follow its administration, and rarely it interferes with digestion or causes sickness. He holds that it is not cumulative, and patients do not get accustomed to its use.

Alt (*Berl. klin. Wochen.*, 1889, No. 36) found the drug ineffectual in twelve out of forty-one cases. Doses larger than 45 grains were apt to cause dizziness and headache, or a condition like that of intoxication. After-effects, as headache, weariness, and sickness, may occur, but soon pass off. Sleep comes on in from half an hour to an hour and three-quarters. He found it very useful in two cases of chorea.

Langgaard (*Therap. Monat.*, Oct., 1889) has made experiments on rabbits with this drug to determine its influence on circulation and respiration. The depth of respiration is decreased, and the amount of expired air lessened by 19 per cent. in the first half-hour, and by 39.5 per cent. in the second. The heart's action continues energetic, but a distinct decrease of blood-pressure is produced. The effects on the circulation are not so great as after chloral, but he says it should be given with care in heart-disease.

Von Meyring and Zuntz (*Therap. Monat.*, Dec., 1889, p. 65) dissent from the conclusions of Langgaard. They point out that sleep itself lowers the blood-pressure, so that every hypnotic must to a certain extent lead to this effect. They gave chloralamide and chloral to animals in amounts which contained exactly the same quantity of chloral (.649 grms. of chloral hydrate and .937 grms. of chloralamide per kilo. of animal). They find that chloralamide has distinctly less depressing effects on the circulation than chloral, but that sleep does not set in so soon, though the

effect lasts longer. They deny also the evil influence of chloral-amide on the respiratory centre, pointing out that sleep in itself lessens the amount of carbon dioxide given off, which is the natural standard of that centre. In the January number of the *Therap. Monatsh.* for 1890 Langgaard replies to the above, and reiterates his views, and says that the decomposition of chloral-amide may not be equally quick in all cases, and that its depressing effects will depend on the rapidity with which the chloral passes into the system. He has compared the effects of urethane and sulphonal with chloral-amide, and finds the depressing effects on the circulation of the two former much less than that of the latter.

Robinson (*Deutsche Med. Wochen.*, No. 49, 1889) compares somnal and chloral-amide slightly to the advantage of the former, which failed in 44 per cent. of the cases, while the latter failed in 46 per cent. He thinks it may have a bad effect on the heart. Three times in cases of uncomplicated heart-failure in Fürbringer's clinic, diminished tension and increased frequency (once from 62 to 108) of the pulse were noticed. In two cases camphor had to be given to overcome dangerous symptoms.

Umpfenbach (*Therap. Monat.*, Feb., 1890) noticed in an epileptic marked stupor after 60 grains given nightly for six nights. This lasted five days. Then 30 grains were given, and after two nights he became collapsed, and he died six days after the last dose of chloral-amide, without any evidence of a paralytic attack. [Surely this death could not be attributed to the drug.—REF.] Among twenty-eight cases in which chloral-amide was given, Umpfenbach reports three cases of skin eruptions. In one case, after two doses of 30 grains, a rash developed on the abdomen and breast, and on a subsequent occasion, after a similar amount, a herpetic rash on the ear. In another case small red spots appeared on both legs after 30 to 60 grains had been given for three weeks. In the third case (a woman), after similar doses for three weeks, there were swelling and redness of the feet and legs, a scarlatinal rash over the whole body, the eyelids being cedematous and the temperature raised. Small hemorrhages afterwards appeared on the legs.

Pye-Smith (*Brit. Med. Journ.*, 1890, i, p. 546) noticed, after 80 grains of chloral-amide given during one night, in two doses of 40 grains each, an acute inflammation of the face, with coryza, raised temperature, and stomatitis; the rash rapidly spread over the whole body, and an acute exfoliative dermatitis followed, with profuse desquamation. The urine was slightly albuminous, and the pyrexia lasted a week.

Peabody of New York (*Therap. Monat.*, March, 1890) has

given as much as 120 grains per day. The only unpleasant after-effect was headache; he does not think it produces the same weariness which sulphonal does.

Paterson, of Cardiff (*Lancet*, Oct. 26, 1890) was the first in Great Britain to record his experience of chloralamide. He used doses of from 15 to 45 grains. The temperature, pulse, respiration, and urine, did not seem in any way influenced by the drug. On one occasion transient wandering, and a feeling of intoxication and giddiness, resulted soon after the drug had been given. Weariness and somnolence the next day were occasionally noticed. He found it of use in phthisis, where it seemed to control the copious night sweats. In heart-disease, in the restlessness and delirium of enteric fever, and in a case of Bright's disease with constant headache, it was of the greatest service.

Hale White (*Brit. Med. Journ.*, Dec. 4, 1889) gave it in twenty cases of various diseases with insomnia. He noticed no bad effects. It produced comfortable sleep in all except two cases, one with cerebral hæmorrhage and delirium, and the other rheumatic fever with salicylic poisoning and delirium. It even caused sleep in painful affections, and two cases preferred it to morphine. The patients fell asleep in from a quarter of an hour to two or three hours, and usually slept till morning. He looked upon the average dose as 30 grains.

Strachan (*Lancet*, Feb. 15, 1890) has given chloralamide in twenty-three lunatics, nine suffering from mania, six from melancholia, three from epilepsy, and two from general paralysis. His results are as follows:—(1) Chloralamide is an active hypnotic; (2) it in no way decreases the heart's action; (3) the average doses vary from 16 to 45 grains; (4) it should be given about an hour before sleep is wished for; (5) if its action is delayed for two or three hours the effect lasts longer; (6) neither headache nor ataxia (as after sulphonal) was noticed; (7) it has no effect on the gastrointestinal tract; (8) it is especially valuable in general paralysis of the insane; (9) on the whole it resembles paraldehyde, but is devoid of the unpleasant smell of the latter.

Cope (*Dubl. Journ. Med. Sci.*, Feb., 1890) found it a valuable hypnotic in the insane. Its actual solubility in water is one in fourteen. No ill effects were noticed in twenty-four patients, but in another giddiness and sickness, with dry, brown tongue, followed six hours after the draught, and no sleep ensued. He thinks it will not relieve pain, and says it does not slow the pulse or respiration. In five out of twenty cases sphygmograms showed no lowering of blood-pressure.

Eloy (*Brit. Med. Journ.*, 1890, i., p. 626) says chloralamide

may be used with advantage in phthisis, but in cardiac affections with reserve. **Malet and Bose** (*Brit. Med. Journ.*, 1890, ii., p. 50) have shown by experiments on dogs that the drug makes breathing slower, quickens the heart's action, and produces nervous excitement ending in sleep. One gramme to every kilogramme of the animal's weight is a strong dose.

3. Chloralimide.

Choay has succeeded, in collaboration with **Béhal** (*Répertoire de Pharmacie*, 1890, p. 108, and *Brit. Med. Journ.*, 1890, iv., p. 1151), in preparing a new hypnotic allied to chloral. This is chloralimide, with a formula of CCl_3CHNH . It crystallises in long needles, and is colourless, odourless, and tasteless. It is insoluble in water, but soluble in ether, alcohol, chloroform, and fatty matters. It must not be confounded with chloralamide, which is in reality chloralformamide. Choay considers that its activity will surpass that of chloral, seeing that for equal weight it gives more chloroform. [It is very doubtful if this has anything to do with the soporific effect of chloral.—REP.] It is permanent, whereas chloralamide is decomposed at 60°C . The dose is the same as that of chloral hydrate.

4. New hypnotics allied to chloral.

Liebreich (*Therap. Monatsh.*, Dec., 1889) alludes to the substitution products of chloral hydrate which have recently been recommended. Some of these, such as ural and chloral ammonium, he considers are practically useless. Somnal is an impure compound, and its real structure is not known. Chloralamide he considers good. He thinks, however, that the action of all the compounds of chloral hydrate with indifferent substances is due to the separation of chloral in the organism, though there may be differences in the spheres of utility of these compounds.

5. Sulphonal.

As was to be expected, a large amount of literature on the action of this drug has been produced during the year. As much of the work done is not new, we can only give a short account of it. It will be seen that many contradictory statements are made by the various observers, and also that much of the work relates to the poisonous effects of the drug.

Richardson (*Brit. Med. Journ.*, 1889, ii., p. 689) has used it in alcoholic mania with good effect and recovery, when other drugs, even hyoscine, had failed. He gave 15-grain doses, the patient sleeping seven hours; 30 grains caused no longer sleep, but produced drowsiness the next day. He also found it useful in migraine. **Kingsbury** (*Brit. Med. Journ.*, 1889, ii., p. 817) reports

equally favourably, and says it can be given without the knowledge of the patient in tea. Too small a dose produces excitement.

Raymond (*Brit. Med. Journ.*, 1889, ii., p. 838) has used it largely at the St. Antoine Hospital, Paris, and thinks it is not an ideal hypnotic, but a useful one. The temperature was slightly lowered; there was no effect on circulation; the urine was increased, and the mouth sometimes dry. It is not an anæsthetic; in fact, sometimes caused an hyperæsthetic state. Doses of 90 grains were followed by ataxia; doses of 15 to 30 grains were quite safe, the effect being more marked in women than men; gradually increasing dosage was unnecessary. It was especially useful in the insomnia of general debility, in neurasthenia and cerebral disturbances; but where actual cerebral lesion existed, the action was often intense, and then the drug ought to be used with care. Insomnia from the abuse of morphine, or from phthisis with cough, was relieved. It was found inert in insomnia from rheumatic pains, sciatica, cardiac troubles, Bright's disease, or intense dyspnœa. The sleep produced by the drug was calm, and came on in half to one hour, and lasted six to eight hours; the after-effects noticed were fatigue, giddiness, and vertigo.

O. Ullman, of Kurenstelt, Mammern (*Correspond. Blatt. für Schweiz. Aerzte*, October 15, 1889, p. 632), reports three cases in which sulphonal in 60- to 75-grain doses invariably gave rise to ataxic affection of the tongue and limbs, the speech being thick and stammering, and the gait uncertain—in fact, caused all the symptoms of alcoholic intoxication, without, however, any disorder of intelligence. The symptoms came on on waking the patients, subsiding in two or three days after discontinuing the drug. Alcohol made the symptoms worse. The cardiac action remained normal. He never saw any such disagreeable effects after doses of 15 to 45 grains. In such doses it is an excellent remedy in nervous insomnia.

E. Marandon de Montyel (*Brit. Med. Journ.*, 1889, ii., p. 1245) has found that, in the insane, sulphonal is an energetic hypnotic, but a dangerous one, as the secondary effects are always painful, often serious, and sometimes dangerous.

Morton (*Brit. Med. Journ.*, 1889, ii., p. 1333) gives from 40 to 60 grains as an ordinary dose dissolved in hot tea or coffee, preferably the latter. No precipitation of the powder occurs until the temperature is below the body-heat. (East has shown that the presence of peptones or of acids prevents precipitation.) Even if precipitate does occur, the powder is then in a very finely-divided state, and so easily absorbed. Its lack of taste is a great recommendation, especially in the insane. It was found very

serviceable in melancholia. The torpor and lassitude observed afterwards may be avoided by graduating the dose. There is no habituation and no cumulative effect, and the drug can be taken for long periods without bad effects. This last point has also been insisted on by Steiner (*Therap. Monatsh.*, 1889, p. 460).

Gordon (*Brit. Med. Journ.*, 1890, i., p. 710) has published an elaborate and careful account of the action of sulphonal. The following is his summary of results:—It reduced the reflex excitability of the spinal cord. It diminished peripheral sensation. Clinical observations showed that large doses slowed respiratory acts, but did not affect the pulse-rate. It slowly destroyed the conductivity of motor nerves, and diminished the irritability of muscles (in the frog), which subsequent washings with salt solution restored. Small doses of 5 to 10 grains increased the excretion of urea, and large doses diminished the excretion. The excretion of phosphates was diminished, but it had no marked influence on the fluid constituents of the urine. No cutaneous eruption was observed, and no flushing nor marked perspiration. There was no influence on temperature. It occasionally caused vomiting, but no marked anorexia; but diarrhoea was noticed occasionally. In good health a distinct hypnotic effect was produced, and in cases of insomnia it was reliable, the sleep which followed its administration being generally tranquil and refreshing, though sometimes the patient awoke with feelings of confusion. Inco-ordination of the upper and lower extremities, a feeling of depression and giddiness, occurred occasionally.

Franz, of Breslau (*Therap. Monatsh.*, 1890, No. 3, p. 119), has used sulphonal in surgical practice without any ill effects. In 26 patients suffering from nervous insomnia out of 86 separate doses it only failed four times (in the same patient). It was useful in breaking off the morphine habit. The dose used in all cases was 15 grains, unless there was pain, when 30 grains were given. Immediately after chloroform narcosis it was well borne, and seemed to lessen the vomiting and headache. In several cases it acted better than morphine. It was equally satisfactory in children. The drug was given in tablets early in the evening, sleep occurring in about an hour, but was delayed if there was pain. No ill effects were noticed from prolonged use.

Percy Smith (*Lancet*, Nov. 23, 1889, ii.) has studied the ataxia and paresis of the lower limbs which he noticed in five lunatics after doses of thirty grains of sulphonal. He thinks the paresis is not due to vertigo, but to a direct action on the cortex cerebri. Sutherland (*ibid.*) thinks it is excellent in chronic insanity with intermittent excitement, its action seeming to last for several

nights after one dose ; the calmative action on the diurnal excitement being also very marked. In insanity with continuous excitement, however, the effects were not so good, but it was even harmful in some cases, as it increased the diurnal excitement. **Bond** (*ibid.*) has used it with excellent results in the insomnia of enteric fever in thirty-grain doses. He noticed no bad effects, except that in one case it seemed to have produced fatal collapse.

Other references to sulphonal may be found as follows :—**Schotten**, of Cassel (*Therap. Monatsh.*, April, 1889, p. 187), who has noticed a scarlatiniform eruption after its administration ; **Schischmann** (*St. Petersburg Med. Wochenschr.*, 1889, No. 42), who has used it with benefit in the insane and in neuralgia ; **Pachond** and **Claret** (*Annales Méd. Psycholog.*, 1889, No. 2) with good results in mania and melancholia ; **Volzin** (*ibid.*) with favourable results, and **Ségis** (*ibid.*) with no result in one case ; **Knoblauch** (*Therap. Monatsh.*, Nov., 1889, p. 495), who gives a long paper principally to show its bad after-effects, says sulphonal will never take a place compared with morphia and chloral, and rather agrees with Von Marandon de Montyel that "*le sulphonal n'est pas un médicament, mais un poison ;*" **Mabon** (*Thérapeut. Gazette*, June 15, 1889), who has used it with good results in the insane ; **Ray** (*Americ. Journ. of Medic. Scien.*, July, 1889, p. 38), who has, in the insane, compared the after-effects of paraldehyde with those of sulphonal, very much to the advantage of the former ; and, finally, **Foy** (*Dubl. Medic. Press*, Sept. 11, 1889, p. 254), who, though liking the drug for many forms of insomnia, thinks it unsuitable for insomnia from pain, cardiac lesions, angina pectoris, or arterio-sclerosis ; he noticed delirium all night after a dose of twenty-five grains.

6. Hyoscine.

Magnan and **Lwoff** (*C. R. Soc. Biolog.*, July 6, 1889) have used the hydrochlorate of this substance, and find that a dose of one milligramme calms an excited patient in five minutes, and this condition is not merely transitory. In delirium tremens it induces healthy sleep, and it has relieved the pains of tic douloureux.

Colman and **Taylor** (*Lancet*, 1889, ii., p. 736) also speak of the certain and rapid effects of this drug to calm the excitement of general paralysis of the insane, cerebral tumour, epilepsy, and hysteria. They have noticed no dangerous symptoms after its administration.

Rabow (*Therap. Monatsh.*, August, 1889, p. 367) gives a short paper with a bibliography on hyoscine.

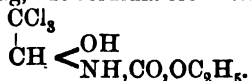
Merch's Bulletin contains a valuable account of hyoscine. It

is eliminated as such through the kidneys, causes more or less dilatation of the pupil, and reduces salivary secretion and perspiration. Its effect on the pulse is still open to doubt, but it has no effect on respiration, the spinal cord, or the electrical susceptibility of the motor cortex cerebri. It does not seem to matter whether the hydrochlorate, the hydrobromate, or the hydroiodate of the substance is employed. Hypodermic injection is described by some as painful, while internal administration acts less promptly, but is less dangerous and the effect very enduring. When given internally the dose is $\frac{1}{3}$ grain. It produces sleep in many, but in others a condition in which the patients are merely somnolent, but yet awake. It seems to have little or no effect in melancholia. Erb has used it with good results in the tremor of paralysis agitans (in which also the salivation and diaphoresis are relieved), the tremor of multiple sclerosis, and of chronic alcoholism. Hallucinations are often noticed after its employment, and also indistinct visions, confused speech, slight vertigo, dry throat, and general weakness.

Barling (*Lancet*, 1889, ii., p. 876) has used it largely in the numerous cases of excitement and delirium occurring in a large hospital, such as delirium tremens, acute mania after operation, and the delirium of heart-disease. He gave $\frac{1}{10}$ grain subcutaneously as a first dose, but this can be much increased in certain cases, even to the extent of $\frac{1}{3}$ grain. The effect of the drug is seen in from one to five minutes; the patient becomes less noisy, drowsiness comes on, and he lies still with his eyes partially closed; in half the cases this condition is followed by sleep. It was always useful in mania. No bad effects were observed.

7. Uralium or chloral urethane.

Poppi (*Pharmaceut. Post*, July 14, 1889) has continued his researches on this drug, the formula for which is as follows:—



It occurs in the form of bitter crystals, readily soluble in alcohol, but with difficulty in water. In doses of seven grains per pound of body-weight given by the mouth in dogs, it almost invariably produced sleep in one or two hours, lasting from five to ten hours. Poppi says the drug is less dangerous than chloral, as it decreases the temperature less, and has scarcely any influence on the pulse. He has given it in a large number of cases of insomnia (in inebriates, phthisis, heart and nerve diseases) in doses of from 30 to 45 grains, with an almost invariably good result. It did not reduce blood-pressure.

8. Somnal or ethyl-chloral-urethane.

Radlauer (*Zeitsch. des Apotheker-Vereines*, Nov. 10, 1889) has introduced a new hypnotic under this name. He says it is a true chemical compound formed by the direct combination of chloral alcoholate with urethane, the formula being—



It occurs in clear, colourless crystals, very soluble in water and alcohol, and, being very deliquescent, is sent out dissolved in alcohol, three parts in one. It is given in thirty-grain doses, and in half an hour sound sleep is produced, lasting from six to eight hours; it has no bad after-effects whatever, according to Radlauer. Lutze (*Pharmac. Zeitung*, October 26, 1889, p. 652) says that this substance is merely chloral-urethane under a new name, but this is denied by Radlauer.

9. Hypnal.

Reuter (*Pharmac. Journ.*, Feb. 1, 1890, p. 602) showed that by heating antipyrin with chloral a crystalline compound is obtained, which he described as trichloraldehydphenyldimethylpyrazolon, and thought it to be of no therapeutic value. Bardet (*Soc. de Théráp.*, March 12, 1890) says, however, that it has properties belonging to both its constituents. Administered in 22 cases in doses of 15 grains (30 grains being rarely required), hypnal induced sleep as readily as chloral, and was most useful in insomnia due to pain or cough. He says it contains 45 per cent. of chloral and 55 per cent. of antipyrin. Bonnet finds that if concentrated solutions of the two salts be shaken together, a considerable deposit of crystals is formed, which, by recrystallisation from water, can be obtained in enormous transparent rhombic crystals of hypnal. It has no odour, and a slight saline taste.

10. Antifebrin.

Gordon (*Brit. Med. Journ.*, 1890, i, p. 13) recommends this drug as a hypnotic in children in doses of 2 to 5 grains (depending on the age). It was found most useful in insomnia from pneumonia of various forms, bronchitis, pain, and general malaise.

11. Urethane.

Gordon (*Brit. Med. Journ.*, 1889, ii, p. 973) has conducted a lengthy research on this drug, and concludes:—Urethane reduces the excitability of the reflex action of the cord, diminishes peripheral sensation, slows the respiration and pulse, and lessens blood-pressure (immediately after injection). Small doses (2 per cent. in salt solutions) do not affect the motor nerve trunks, but large doses (4 per cent.) quickly destroy the conductivity of motor

nerves ; both small and large doses abolished the irritability of muscle fibre. Small doses (5 to 10 grains) increase the excretion of urea, large doses diminish it, and the fluid constituents of the urine slightly increase while it is administered. The skin with large doses shows a tendency to perspiration and flushing, but it has no effect on temperature. No hypnotic effect was produced in good health, even by large doses, and its prolonged administration tended to cause loss of appetite and occasionally vomiting. It was somewhat unreliable in insomnia, but if sleep were produced, then this was tranquil, pleasant, and natural, no confused feelings being noticed on wakening. The drug is not contra-indicated where only a slight degree of pain is present.

III.—THE TREATMENT OF PAIN.

A.—INTERNAL ADMINISTRATION.

In exalgine we have a new remedy which was brought out with the usual statements that it was better than any other analgesic, and, moreover, possessed no toxic properties. The undermentioned cases will, however, show that it is by no means free from all poisonous effects, and that it has, indeed, to be used with the greatest caution. Moreover, as an analgesic we have personally found it to be quite inferior to antipyrin, which, next to opium, is probably the best drug we possess for easing all forms of pain. In some people antipyrin does not act at all, but as a rule it is of great service, and in doses of 15 grains is practically free from even the slightest unpleasant after effects. It will be seen, however, that exalgine, even in 3-grain doses, has produced most unpleasant symptoms.

1. Exalgine or methyl-acetanilide.

In the summary of the therapeutics of 1888-89, in the "Year-Book of Treatment" for 1890, p. 303, will be found a notice of the introduction of this drug (first obtained by Brignonet) by Dujardin-Beaumetz and Bardet. Its dose of 4 to 6 grains, its best mode of solution in alcohol and water, and its use as an analgesic, are there all pointed out. Since then many observers have published reports on this new drug.

Gaudineau (*Bulletin Génér. de Therapeutique*, Sept. 15, 1889) gives the following opinions :—

PHYSIOLOGICAL ACTION.

1. As exalgine is an aromatic derivative, it has no marked toxic properties [see below—REP.], can influence the sensory and motor nerves and the respiratory and circulatory organs. In

poisonous doses it acts principally on the red blood corpuscles, diminishing gaseous interchange in the blood.

2. It produces death in doses of 7 grains for every two pounds' weight of the animal.

3. In lethal doses convulsions occur, with death from asphyxia.

4. In poisonous (but not fatal) doses of 3 grains for every two pounds' body-weight, the temperature is rapidly reduced for several successive hours.

5. In a healthy man doses of 4 to 6 grains produce no effect except slight vertigo and ringing in the ears.

6. The primary action is on sensibility; its thermo-genetic action is secondary.

CLINICAL ACTION.

1. In doses of 3 to 6 grains, if the subject is non-febrile, there is generally no effect.

2. Doses of 4 to 6 or 12 grains modify pain considerably.

3. Exalgine is poisonous in doses equivalent to 7 grains for every two pounds of body-weight, so that in ordinary therapeutic doses it may be considered absolutely inoffensive.

4. The therapeutic dose varies from 4 to 12 grains given in the 24 hours.

5. It does not irritate the stomach.

6. It is especially useful in neuralgic pains, and to a less degree in rheumatic pains.

Fraser (*Brit. Med. Journ.*, 1890, i., p. 344) says he has given exalgine in 21 patients, and in 16 forms of disease. Eighty-eight separate administrations were made, and in 67 of them pain was relieved, and in 21 no distinct benefit was noticed. The dose given was half a grain, but 1-, 2-, and 4-grain doses were also used. The largest amount given in 24 hours was 14 grains. The greatest relief was noticed in cases of neuralgia; with 52 administrations 48 were successful. He thinks its analgesic power is not very strong, but it is free from the disturbances and inconveniences of nearly all other pain-subduing agents. In essential neuralgias the pain was generally relieved or removed within an hour. In sciatica and the pains of herpes zoster pain was often removed in fifteen minutes, sleep frequently following. In locomotor ataxy, pains were speedily relieved, and in toothache, cardiac angina, and pleuritic pain, equally rapid cures were noticed. The pains met with in rheumatism and diseases of the stomach were much relieved.

Herschell (*Brit. Med. Journ.*, 1890, ii., p. 151) speaks highly of the drug in cases of tabetic pain, trifacial neuralgia, sciatica,

and herpes zoster. The dose given was generally three grains. Farrar (*ibid.*) cured severe facial neuralgia with two doses of two grains each.

Atkinson (*Brit. Med. Journ.*, 1890, i., p. 1366) has given the drug in various cases of neuralgia, and though in a few instances (particularly toothache) the pains were relieved, as a rule no material benefit was obtained from exalgine.

2. Poisoning by exalgine.

Bokenham and Lloyd Jones (*Brit. Med. Journ.*, 1890, i., p. 288) report a case of poisoning by exalgine, in a female aged twenty-four, to whom six grains of the drug had been given three times daily to relieve the pain of myelitis. After seven days symptoms of poisoning set in, with marked cyanosis, feeble and small pulse, giddiness, and disturbances of vision. In spite of the administration of alcohol and amyl nitrite, the cyanosis increased, vomiting came on, and death appeared imminent. Hypodermic injections of strychnine and digitalis gradually relieved all the symptoms, and the patient recovered. The similarity of this form of poison to that due to antifebrin and aniline is pointed out, the blood containing much methæmoglobin in all these cases.

Sample (*Brit. Med. Journ.*, 1890, ii., p. 85) gives a case of poisoning, in which seven grains of exalgine were taken for facial neuralgia. A quarter of an hour afterwards there was giddiness, syncope, tinglings, blue fingers, convulsive movements of the eyelids, feeling of swelling of the head, and diaphragmatic oppression. Vomiting followed, but malaise persisted for more than twenty-four hours.

Johnston (*Brit. Med. Journ.*, 1890, i., p. 1009) reports poisoning after three grains of the drug in a man aged forty-five years. He experienced giddiness, swelling of the head, great oppression of breathing, and collapse, but there was no cyanosis. Vomiting supervened, and he recovered.

Walker (*Brit. Med. Journ.*, 1890, i., p. 1246) mentions a case where exalgine acted as an excellent analgesic; but on two occasions, after doses of five grains, the patient lost all feeling; then, having partially recovered consciousness, felt as if suspended in the air, and quite numb; the eyes felt much enlarged, the vision was most indistinct, as if there were merely a misty vapour before the eyes.

Heins and Filehne (*Berl. klin. Wochen.*, 1890, No. 11, p. 250) give some experiments on frogs and rabbits, and show that exalgine is twice as active and twice as dangerous as antifebrin. In man it causes swelling of the ears, a sort of drunkenness, and finally brings about a dissolution of the red-blood cells.

3. Methylene blue.

From the affinity of this drug for nerve tissue, particularly the axis cylinders of nerve, Ehrlich and Leppmann suggested that it might prove to possess anodyne properties when introduced into the system. This idea is said to have received confirmation in the Moabit Hospital, Berlin. It was found that even after the smallest doses, methylene blue effects a rapid passage into the blood, since a quarter of an hour after administration it could be detected in the urine. In all definite forms of painful local affections, as in all neuritic processes, in rheumatism of the muscles, joints, and tendons, it was found to possess anodyne properties (*The Pharmac. Journ.*, 1890, vol. xx., p. 1057).

4. Insufflation of chloride of sodium into the anterior nares.

Leslie (*Edinburgh Med. Journ.*, Jan., 1890, p. 614) states that he has discovered a very simple and generally instantaneous cure for neuralgic headache, faceache, toothache, earache, and allied complaints. This consists in directing the patient to use common salt as snuff; or, better, during inspiration to insufflate about four grains of salt into the nostril of the affected side. The application produced little pain or discomfort, and the relief is immediate in most cases. If the disease is long-standing and extensive, then insufflations every half-minute for about five minutes are necessary.

5. Phenacetin.

Horvath, of Buda Pesth (*Orvosi Hetilap*, 1890), has used this drug in doses of from 7 to 45 grains per day in various forms of neuralgia, as sciatica, myelitis, tabes dorsalis, herpes zoster, etc. As a rule relief followed, and this was particularly so in cases of tabes and migraine. Hirschpeller (*D. Arch. f. klin. Med.*, vol. xlv., p. 434) speaks highly of phenacetin, especially in trigeminal neuralgia and the pains of tabes; and Ayers (*New York Med. Record*, 1889, p. 541) considers that as an anti-neuralgic its effect is superior to antipyrin.

6. Theine.

Bauduy (*Weekly Med. Rev.*, 1889, No. 418) relates two cases of neuralgia treated by subcutaneous injections of Merck's theine. The dose used was half a grain. The results were successful. No unpleasant effects were noticed.

7. Methacetin.

Mahnert (*Wiener Med. Blätter*, 1889, Nos. 28 and 29) says this substance has appeared to relieve the pains of tabes, of cephalalgia, chronic muscular rheumatism, and neuralgia.

8. Codeine.

Loewenmeyer (*Berl. klin. Wochen.*, 1890, No. 18) has used codeine very largely as an analgesic. He says that it is a narcotic analogous to morphine, though less active, but free from injurious after-effects and injurious effect on the system, so that the drug may be used for long periods without fear. In painful affections of the abdominal and pelvic organs it was useful, except in gastric ulcer and abdominal cancer, where morphine alone relieved. Pain occurring in paroxysms, as in hepatic or renal colic, is rarely controlled by codeine. It is not of much use to restrain intestinal movements. It is especially serviceable in pain from diseases of the respiratory organs and heart, but, again, in pain from diseases of the nervous system it was not so efficacious. The dose given was from $\frac{1}{2}$ to $\frac{3}{4}$ grain.

9. Relative power of analgesics.

Dujardin-Beaumetz (*Americ. Journ. Med. Science*, Feb. 1890, p. 173) compares the new antithermic analgesics. He places antipyrin first, exalgine second (but only because of its insolubility, as he thinks it is a stronger analgesic than antipyrin), phcnacetin third, and lastly antifebrin, not because of its slight analgesic power, but because of its tendency to cause cyanosis.

10. Migraine.

(a) *Eucalyptus*.—Morris Lewis and de Schweinitz (*Med. News*, 1889, July 29) have given the essence of eucalyptus in eight cases of migraine in doses of 5 minims three to five times daily, with the result that the attacks were lessened and finally prevented. In headache from organic disease of the ovaries or intestines the remedy was useless.

(b) The following powder is recommended by Hammerschlag (*Therap. Monatsh.*, August, 1889, p. 391): \mathcal{R} Caffeine Citrat. gr. xv.; phenacetini gr. xxx.; sacchar. alb. gr. xv. Divide into ten equal parts, and give one part in a capsule every two or three hours.

B.—LOCAL ANÆSTHETICS.

1. Methyl chloride.

Feibes (*Berlin klin. Wochensh.*, 1889) draws attention to the great use made of methyl chloride as a local anæsthetic in the Paris hospitals. It may be used in the form of a spray, but this is objectionable, as the anæsthetised area is not then limited. Bailly used tampons of cotton-wool saturated with methyl chloride, surrounded by flock silk, and then a layer of thin silk, and held to the part by wooden or vulcanite holders. After contact for

some seconds the part gets pale and diminishes in sensitiveness. If the tampon is then removed there is marked reaction, with congestion and itching. If, however, the application is continued for a few seconds longer, the skin assumes a dried, parchment-like appearance, and this is the time to operate. If applied longer than this superficial necrosis may result. The application is sometimes followed by itching and an urticarial eruption.

Windschied (*Deut. Arch. f. klin. Med.*, vol. xlv., pt. 4) records the treatment of 21 patients suffering from various painful affections by methyl chloride spray for one minute. It was used 55 times; 36 times successfully, 19 without effect. The duration of relief varied from an hour to half a day, but never lasted a whole night. If it comes in contact with mucous membrane it produces intense burning.

2. Strophanthine and ouabaine.

Gley (*C. R. Soc. Biologie*, 1889, Nov. 9) says these principles, discovered by Arnaud, are remarkable local anæsthetics. Four minims of a solution of 1 in 1,000 of either substance, dropped into the eye, produces in five minutes marked anæsthesia of the conjunctiva, and after three or four minutes insensibility of the cornea is complete. This anæsthesia may last several hours without producing inflammation; it is said to be much more powerful than cocaine, and is accompanied by marked myosis. Panas has noticed the same effects, but states that the action is much weaker than cocaine, and says ouabaine, though acting on the rabbit's eye, has no effect on that of man.

3. Cocaine.

Reclus (*Congrès de Chirurgie*, 1889) speaks highly of this drug as a local anæsthetic. He says it should not be injected hypodermically, but intradermically; that is, into the skin itself, and not into the subcutaneous tissue. Generally $1\frac{1}{2}$ to 2 grains was sufficient, 3 grains having caused dangerous symptoms.

Gluck, of Omaha (*New York Med. Record*, 1890), advises that cocaine injection should be prepared by dissolving two drops of phenol in a drachm of water by agitation, and then adding 10 grains of hydrochlorate of cocaine. This keeps the solution pure for an indefinite time, prevents toxic effects, and is said to increase the anæsthetic action. Parker (*Brit. Med. Journ.*, 1890, ii., p. 506) uses resorcin instead of phenol for the same purpose.

4. Ether.

Kums, of Antwerp (*Sem. Méd.*, 1890), recommends the subcutaneous use of ether in neuralgia, employing 15 minims of ether,

or a mixture of equal parts of ether and alcohol. The injection should be made as near as possible to the site of pain, and then the fluid pressed through the tissues with the finger. He has thus often cured rheumatic neuralgia, torticollis, sciatica, and relieved gastric pains.

5. Sciatica.

At the Philadelphia Neurological Society (*Practitioner*, 1889, Nov., p. 373) last year there was an important discussion on the treatment of sciatica. Cohen reported a most inveterate case which was finally cured by an injection of 10 minims of a 1 per cent. solution of *osmic acid* deeply into the gluteal region. This was continued two or three times a week, great relief being experienced, and the patient had recovered in about eight months. Madison Taylor mentioned a case cured by *massage* with a glass rod. Weir Mitchell said that in all cases great attention ought to be paid to the constitutional state of the patient, and then *massage* often effected a cure. In more severe cases the *cautery* should be applied, but only lightly, so as not to destroy the skin. He had seen no good results from *nerve-stretching*. But he laid most stress on the necessity for absolute *rest*, fixing the leg on the old-fashioned thigh-fracture splint, to be worn continuously. Whatever other treatment was adopted, this should always be done. The persistent application of *ice* along the nerve track, by means of bags, from the sciatic notch to below the knee, day and night, had yielded brilliant results.

IV.—THE TREATMENT OF EPILEPSY, CHOREA, AND EXOPHTHALMIC GOÏTRE

A.—EPILEPSY.

1. Rubidium-ammonium bromide.

Rottenbiller (*Gyógyászat*, 1889) concludes, from using this drug, that:—1. Rubidium-ammonium bromide is an efficient anti-epileptic remedy. 2. In doses of from 30 to 45 grains it has no great effect. 3. 180 grains a day act more energetically than equal doses of potassium bromide.

Laufenaer (*Therap. Monatsh.*, August, 1889, p. 348) has also used this drug with success in epilepsy.

2. Borax.

Stewart (*Brit. Med. Journ.*, 1890, i., p. 901) has used this drug, and considers that it exercises a peculiar influence over the nocturnal seizures, and that bromide of potassium exerted a more

powerful influence over the diurnal seizures; in cases with both diurnal and nocturnal seizures, a combination of the two drugs was the best treatment.

3. Amylene hydrate.

Wildermuth (*Deutsche Med. Wochensh.*, August 15, 1889) has, in a number of cases, obtained the best results in epilepsy from the use of this drug. Its employment is specially indicated where the attacks rapidly follow each other, when there is marked bromism (so that a temporary use of some other drug is necessary), and in nocturnal epilepsy, either alternately with bromides, or, in new cases, combined with atropine. He gives 30 to 60 minims in a 10 per cent. watery solution, the taste being concealed with dilute wine or syrup. In some cases 120 minims may be given. If the patient has previously been using bromide of potassium, this may be rapidly diminished as the amylene hydrate is given, and, if improvement results, may be entirely suspended. Hypodermic injections of pure amylene hydrate may be given during the convulsion. After very prolonged use of very large doses, considerable somnolence has been noticed, and some gastric disturbance. Wildermuth says that in many cases he has seen the convulsions entirely disappear after six or eight weeks' employment of this remedy.

B.—CHOREA.

1. Ardeber (*Rev. de Scien. Méd.*, 1889, p. 509) reports 13 cases of chorea treated by *antipyrin*. The cases, of which some were very severe, were secondary either to acute rheumatism, or more often to fright. The drug was given in doses of 45 grains per day, and cure resulted on the average in ten days. He noticed no accidents from the drug, nor intolerance of any kind. Moncorvo, of Rio de Janeiro (*Rev. Gén. de Clinique et de Thérapie*, 1889, No. 36) also reports favourably on the use of antipyrin in chorea; in one case he gave as much as 90 grains in the day.

2. Von Reiss (*Journ. Amer. Med. Assoc.*, August 31, 1889) has seen good results in chorea by the injection of $\frac{1}{10}$ grain of *eserin sulphate* twice daily.

3. Bastian (*Lancet*, July 13, 1889) has treated a protracted case of chorea, which had lasted for over eight months, by *prolonged sleep*. This was brought about by the administration of a chloral and bromide draught every time that the patient (a girl of 20 years) awakened, only leaving time for food to be given. At the end of fourteen days there was marked amelioration, and one month afterwards complete cure. Before this Bastian had

treated eight other choreic patients in the same manner, using, however, chloral alone.

4. Jeffries (*Med. News*, 1890, March 15) reports 10 cases of chorea in infants, in which he administered *sulphonal* in doses of from 2 to 5 grains thrice daily. In the first five cases, when the chorea had occurred for the first time, health was established in three weeks; in two of these cases arsenic had given no relief. The five other cases were subjects of old chorea; three of these were cured in one month, the other two were not benefited.

5. Alt, in his investigations on chloralamide (*vide supra*), found *chloralamide* of great use in chorea; in one case a boy of 11 was cured, after five days' treatment, with 15-grain doses thrice daily, and in the other case, a girl who had been unsuccessfully treated by arsenic for 14 weeks, was cured in eight days by chloralamide.

6. Dresch (*Bull. Gén. de Thérap.*, 1890, April 30) considers that chorea is a microbic disease, and that the choreic movements are reflexes provoked by the microbic infection, these movements moreover having the providential action of destroying the micro-organisms, and getting rid of the products of their secretion. He therefore, for the last ten years has employed *salicylate of soda* in chorea as a germicide.

C.—EXOPHTHALMIC GOÏTRE.

1. Nothnagel (*Med. Press*, 1889, December 25, p. 655) says that in this disease digitalis and similar remedies are of no use for tachycardia. An effective agent against palpitation is cold, in the form of an ice-bag either over the heart or over the neck. The patients ought to live quietly and avoid coffee, beer, cigars, and mental and bodily excitement. Little or nothing can be effected by medicines. Galvanism, through the medulla oblongata and cervical sympathetic, is the best treatment; but this should be continuous and associated with a hydro-therapeutic course, the patient being systematically treated with tepid half-baths, irrigations, wrappings in moist linen, and the cold spinal bag. Iron may be given, and, if there is much excitement, the bromides. In well-to-do patients sojourn in mountain regions is most important.

2. Hammond (*New York Med. Journ.*, 1890, Jan. 25, p. 87) recommends the use of *carbazonate of ammonium* in this disease. Its use was accidentally discovered by Combes. He quotes three cases, in which he considers that decided benefits resulted. The drug is given in the form of a pill, 1 grain thrice daily for the first week, 2 grains in the second, and 3 grains in the third. At the end of the first week the skin and conjunctivæ assume a slight saffron

colour, which deepens, then a peculiarly unpleasant odour exhales from the body; and subsequently, if the drug is persisted in, severe gastric disturbances may arise. It is rarely possible for the patient to take the remedy for more than three weeks.

3. *Janeway* (*Med. News*, 1889, August 10, p. 163), employed *atrophanthus* in doses of 5 minims thrice daily, and considered it a useful remedy in Grove's disease. Spartein was of no service in two cases. Rest and hypnotics were of great use, together with iron if there was co-existing anæmia. He considered that hospital and dispensary patients, from their very surroundings, were less amenable to treatment than those in the better walks of life.

V.—THE TREATMENT OF DRUG CRAVING.

A.—CHRONIC MORPHINISM.

1. *Wynne Foot* (*Dublin Journ. of Med. Science*, 1889, Dec. 2, p. 457) gives a lengthy article on morphinism and its treatment. He says that in treatment it must be remembered that the process of cure, or "demorphinisation," requires a degree of moral and physical courage seldom possessed by the morphine habitué. His abject mental state calls for firmness, gentleness, and tact on the part of the physician and attendants. Four methods of treatment have been tried—(1) The deception plan; (2) the substitution plan; (3) the tapering off plan; and (4) the abrupt withdrawal plan. The two first methods are unworthy of consideration. The tapering-off plan, by gradually reducing the dose, seems to be the best. The abrupt discontinuance of the drug is attended in all cases by great sufferings, and even by serious danger. These effects are known as the *Abstinenz-symptome*, and comprise acute diarrhoea, insomnia, great excitement (amounting at times to dangerous mania), hallucinations, and collapse. In fact, so marked are these symptoms, that in cases where the habit is concealed Charcot uses them as a means of diagnosis. In pregnant women, incautious attempts to withdraw the habitual drug are often followed by loss of the fœtus.

2. *Lanphear* (*Journ. of Amer. Med. Assoc.*, 1890, i., p. 648) gives his method of treating chronic morphinism. The patient has a special nurse, and the drug is gradually reduced day by day, the patient being carefully watched, to avoid *Abstinenz-symptome*. As a rule, complete withdrawal is accomplished in about ten days. About the third day, at eight o'clock, sulphonal (20 grains) is given; the patient then has a bath, and at 9.30 the sulphonal is repeated; and an hour later the lessened dose of

morphine. On the fourth night 4 grains of monobromide of camphor are given at six o'clock, and repeated each hour until ten, when 60 grains of sulphonal are given, repeated at eleven, together with the morphine. The dose of monobromide of camphor is gradually lessened each night, and the sulphonal is as soon as possible superseded by ammonium bromide, which is in turn lessened, until nothing is taken—about the fourteenth day. The hygiene and food of the patient must, of course, be carefully attended to; and, if possible, a pleasure-trip be taken.

B.—CHRONIC COCAINISM.

Clouston (*Edinb. Med. Journ.*, 1890, p. 809) says cocain is the acutest and most absolute destroyer of inhibition of the moral sense generally yet known. To get the same effect, the drug has to be increased faster than any other such drug. The treatment of cocainism consists in outside control of the patient, in at once stopping the drug, in careful watching, nursing, the use of every sort of food that will keep up the strength, and of the bromide of ammonium, brandy or wine, tea and coffee, and, possibly, a hypnotic, like paraldehyde or sulphonal, for at least two or three nights.

VI.—MASSAGE AND HYPNOTISM.

A.—MASSAGE IN INSANITY.

Savage (*Brit. Med. Journ.*, 1889, ii., p. 650) says that of late years there has been too great a tendency to treat all forms of neurosis by massage. In many of these cases, however, it was positively harmful. It might be taken for granted that it was rarely if ever useful in ordinary cases of insanity; in cases of emotional self-consciousness it was bad, both the solitude and the bed being contra indicated. Its chief use was in those cases in which mental depression was associated with physical weakness, loss of flesh, and deficient action of the gastro-intestinal tract.

B.—HYPNOTISM.

1. Voisin (*Discussion at the Psycholog. Sect. of the Brit. Med. Assoc., Brit. Med. Journ.*, 1889, ii., p. 649) read a paper on the use of hypnotism in the treatment of insanity, and of the moral and instinctive perversion of backward and imbecile children. He said that the insane were generally supposed to be incapable of hypnotisation, but that this was not his experience. He stated that by this method he had cured persons suffering from hallucinations and delusions, and from disturbances of special and

general sensation. Suicidal ideas and acute mania had disappeared by the use of this method, and these patients had even remained asleep for six to eight days. He had also similar success in dipsomania, morphinomania, onanism, and even amenorrhœa, in the insane. In the discussion which followed, these statements were supported by various physicians, who had seen the same results at the Salpêtrière; but were adversely criticised by others, who had tried the method in English asylums, but generally without success.

2. A similar discussion on hypnotism occurred in the Therapeutic Section of the British Medical Association (*Brit. Med. Journ.*, 1890, ii., p. 442), when again the most varying views on its utility were expressed. No new matter was elicited, and a committee was appointed to inquire into its uses.

3. **Myers** (*Practitioner*, March, 1890, p. 197) gives an interesting paper on "Hypnotism—at Home and Abroad," pointing out the large number of researches, and the extensive uses made of this method, especially on the Continent, and the comparatively slight attention paid to it in England.

An excellent account of the whole subject of hypnotism may be found in a book published during the past year. This is "Hypnotism," by **Albert Moll**, of Berlin (*The Contemporary Science Series*, 8vo, pp. 410. London: Walter Scott).

Space prevents us from more than merely mentioning the names of the following papers on hypnotism:—**Charcot** (*Deutsche Med. Wochenschr.*, 1889, No. 25), **Moravcsik** (*Therap. Monatsh.*, Nov., 1889, p. 525), **Corval** (*Therap. Monatsh.*, Sept., 1889, p. 403), **Frey and Anton** (*Wien. Med. Wochenschr.*, 1889, No. 23).

DISEASES OF THE STOMACH, INTES- TINES, LIVER, ETC.

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1. Influence of drugs, &c., on digestion.

The investigation of digestive processes has hitherto been pursued either by removing the contents of the stomach at different stages of the digestive act, or by producing digestion of food-stuffs artificially in the ordinary laboratory utensils. The latter method, as must be obvious, allows of much more accurate and continuous determinations than does the former; but, nevertheless, it is not even an approximation to the actual conditions which exist in the normal alimentary canal. As Mr. Sheridan Lea has pointed out (*Journal of Physiology*, vol. xi., 1890, p. 226, and *Med. Chron.*, vol. xii., p. 20), the following influences are at work in the natural process which have not been imitated in more than a very partial manner in methods of artificial digestion: (1) Constant movement of the digestive materials; (2) removal of the products of digestion as soon as they are formed; and (3) the constant addition of fresh portions of digestive juices. The last condition is probably of minor importance, but the first two influence greatly the results obtained. Mr. Sheridan Lea has attempted in some way to eliminate errors, by conducting digestion in a tube made of dialysing membrane, in which the contents were kept in constant motion; and although even then the conditions of natural digestion were by no means perfectly imitated, yet this method is a distinct advance on those hitherto employed. The results, too, show that former records of artificial digestion cannot be absolutely relied on. Thus, taking in the first place the salivary ferment, and comparing its action in flasks and in the apparatus mentioned, Dr. Lea finds that by the latter method the starch is converted much more rapidly and much more completely, the dextrin residue being less; and that

the more dilute the starch solution, the more do the results of the two methods approximate. He concludes, too, that probably in the alimentary canal, where digestion is much more perfect, all starch is changed into maltose before absorption.

In the case of the pancreatic ferment the results are similar. In the flask, the amount of proteid dissolved is considerably less than that dissolved in the dialyser, and further, the flask solution contains more albumoses, tyrosin, and leucin, than does the dialyser. Yet the dialyser method is in the case of this ferment not so near an approach to natural digestion as it is with the salivary ferment, for peptones are less easily diffusible than sugars, and remain to disturb the process. The tyrosin and leucin residues, Dr. Lea thinks, are not errors of the process, but really occur as the result of natural digestion, since they can be obtained from the intestine after any considerable digestion of proteids. But Dr. Adami in reviewing the paper in the *Medical Chronicle*, insists, and the writer thinks the objection is important, that even in the alimentary canal these bodies are accidental products of digestion, and are due to the action of bacteria.

In respect of pancreatic digestion, no better method of investigating it than that suggested by Mr. Sheridan Lea has as yet been put forward. It must also be remarked, that in previous experiments on digestion in the human subject, the peptonising power of the pancreatic juice, which goes on in the intestines, and is a most powerful agent in the assimilation of albuminous bodies, has been to a great extent overlooked. There has been a tendency to assume that observations as to gastric digestion were final, and that the whole of the digestive process might be judged thereby.

Some of the objections raised by Mr. Lea to the results of artificial gastric digestion are removed by the research which follows, for here, by means of the stomach-tube, the actual processes going on in the living stomach are examined.

Wolff (*Zeit. f. klin. Med.*, xvi., Hft. 3 and 4, 1889, and *Med. Chron.*, vol. xii., p. 371) has made some important observations upon the influence of various articles of diet and medicinal agents upon the secretion of the human stomach. This method of procedure was the following: The ordinary amount of acid in the stomach was ascertained, and also its time of appearance, after an Ewald's test-meal, consisting of a roll weighing about an ounce and a quarter, with ten ounces of water. This was done in different persons, first in the normal condition, and then after the addition of various agents. The results may be summarised as follows:—

1. *Alcohol*.—This was added to the test-meal in different quantities, and in the form of cognac or Munich beer. It was found that small quantities of alcohol, about 20 per cent., had a slight power of raising the secretion of hydrochloric acid and of hastening the progress of peptonisation, but quantities amounting to 30 per cent., or more, distinctly hindered these processes. After a time, too, the alcohol seemed to have the effect of causing the stomach to lose its response to the food-stimulus, so that more and more alcohol was required to excite peptic secretion, and the glandular function of the stomach became more and more affected, so that at last almost complete loss of digestive function ensued.

2. *Coffee*.—This was examined in the form of caffein, since the colour of the ordinary infusion interfered with the tests for hydrochloric acid. Of the active principle, doses of twenty centigrammes (equal to about three grains) were employed, this being, it was estimated, nearly the amount which would be absorbed by an habitual coffee-drinker. It was found to lessen the secretion of hydrochloric acid and delay peptonisation.

3. *Nicotin*.—One milligramme was introduced by the sound after each meal, but no definite conclusion could be drawn from the results obtained.

4. *Bitters*.—Nitrate of strychnine was given in doses of 0.5 to 1.5 centigramme, and it was noted that where the acidity was merely below normal, it was considerably raised by the strychnia, but that where hydrochloric acid was habitually absent, no effect was produced. Infusion of condurango produced very little influence upon the acidity, but slightly increased the amount of pepsine, thus agreeing with previous experimental results by Reichmann. Bitter infusions increased the amount of digestive juice when given with food, but had less effect than plain water when poured alone into the fasting stomach. If alkaline or neutral juice were ordinarily present, bitters did not provoke the secretion of hydrochloric acid.

5. *Bile*.—In three persons, to whom 15 to 20 ccm. of ox-gall were administered with the test-meal, it was found that the acidity was somewhat lessened, but that there was no considerable diminution of the hydrochloric acid or of the activity of peptonisation.

6. *Common salt*.—Five grammes of common salt given with the test-meal lessened the secretion of hydrochloric acid, especially when hyper-acidity was present, in which case the symptoms were much alleviated. Wolff therefore attributes the beneficial action of the waters of Kissingen and Wiesbaden to such an action.

7. *Hydrochloric acid*.—This was given to three patients in

whom hydrochloric acid was ordinarily absent from the stomach secretion, but in no instance was the usual secretion of hydrochloric acid influenced by the added acid.

The author, applying his results to practice, recommends for cases of hyper-acidity, with or without hyper-secretion, a powder having the following composition :—

Sulphate of soda	...	...	...	...	450 grains
Sulphate of potash	...	...	...	...	75 "
Chloride of sodium	...	...	...	...	450 "
Carbonate of soda	...	...	...	...	375 "
Biborate of soda	...	...	...	...	150 "

half a teaspoonful to be taken three times a day in half a glass of lukewarm water, fasting, and two hours before dinner and supper. In a typical case of hyper-secretion, after four weeks' treatment, the quantity of fluid in the fasting stomach was reduced from 50 ccm. to only a few ccm., and the acidity at the height of digestion by one-third.

[It must not, however, be concluded from the above results that the action of alcohol, coffee, etc., is distinctly harmful to the system because they delay digestion. Sir William Roberts had previously arrived at the same conclusions as to their physiological effects; but he remarked that it may be a real good to delay the digestion, in that, thereby, the danger is avoided of throwing the whole meal, in a peptonised form, into the blood at one time.—R.M.]

Diagnosis of diseases of the digestive process.—Huber (*Munch. med. Wochens.*, 1889, No. 19; *Centbl. für klin. Med.*, 1889, p. 803).—The writer agrees with the opinion of Brunner, that the time of appearance of salicyluric acid in the urine after taking salol internally is not an absolute indication of the normality or otherwise of the movements of the stomach. Ewald and Sievers held this to be so; but Huber has found that even in perfectly healthy people the appearance of salicyluric acid may be delayed without discoverable cause, and that considerable variations in the time of appearance may occur from day to day. On the other hand, however, he holds that the time of cessation of the salicylic reaction does furnish a measure of the motor competency of the stomach. Thus, in healthy persons, 1 gramme of salol taken after dinner will continue to affect the urine for not more than twenty-seven hours; but if there be insufficient peristalsis, the disappearance of the reaction may be delayed till after thirty-three or thirty-six or even forty-eight hours. The author furthermore believes that the number of hours beyond the normal for which the

reaction is still obtainable varies directly with the degree of insufficiency of muscular power of the stomach.

2. Diet.

Nitrogenous diet.—The question of diet, of all-importance in disease, has in recent times assumed an unusual interest, in regard to the researches of German observers, the more recent of which have been quoted, with reference to the action of the various digestive ferments upon food-stuffs at different stages of the secretion process, and also with regard to the systems of diet advocated for the treatment of obesity. It is known to the readers of the "Year-Book" that the essential element in one of these latter treatments, that of Dr. Towers Smith, is the elimination of carbo-hydrates from the diet. The danger of overloading the system with nitrogenous matters, therein involved, is overcome, and we think successfully, by the simultaneous copious potations of water recommended by Dr. Towers Smith. But a further question is, as to whether such a diet is sufficient to maintain the economy while doing ordinary work. This is answered in the affirmative by Dr. Towers Smith, and he offers as proof the results he has obtained in connection with this point. Two communications which appeared in 1890 are of interest, in that they appealed not to short experiments, but to the experience of nations who have existed for ages on such a diet.

Dr. Herschell (*Lancet*, 1889, vol. ii., p. 950) alludes to the opinion of physiologists, that life cannot be maintained on a diet consisting of lean meats and water without any farinaceous food. As proof of the opposite view, he remarks that a family of savages was recently exhibited in London who, like all their race, had existed upon such a diet, and had thrived—at any rate, in an animal sense.

J. W. Good, of Manitoba (*Lancet*, 1890, vol. i., p. 17), also writes that, not only the natives, but also Europeans, in the Athabasca district of the Hudson's Bay Territory, live on a diet composed of meat alone, and some of them on fish alone, and retain full vigour, both mental and bodily, the observations extending to a period of twenty or thirty years. They are singularly free, too, from constipation, digestive troubles, and scurvy, although the latter is prevalent at York Factory, where, during the winter, salted meat is eaten. Those living on fish alone seem to enjoy, if anything, slightly better health than those who partake of meat.

Dr. Herschell also alludes to the effects of the diet prescribed by Salisbury, of New York, in the treatment of new growths. This is essentially a lean-meat diet, and is pursued for periods of

months; yet not only does the general health not suffer, but seems actually to improve.

[It is obvious that the examples quoted from savage nations are somewhat beside the question in discussing the effect of a diet upon people whose brains are active. In this article, however, we have to deal only with diet in its relation to disease; and it must be concluded that, where circumstances arise which render it important for a time to prescribe a diet void of carbo-hydrate elements, no serious mischief need be feared therefrom, provided that the treatment do not extend over a very prolonged period. The information recorded above, as to the freedom from scurvy of those who habitually exist on such a diet, is remarkable, but it only shows that the ætiology of scurvy is complex.—R. M.]

Milk.—It is a very common practice to boil milk before it is used, in order to destroy any disease-germs which may be contained in it. It is, therefore, desirable to ascertain whether the nutritive value of the milk is in any way altered by heating. During the year, Dr. Vassilieff (*Bull. Gén. de Thérap.*, June 15, 1890, and *Med. Chron.*, vol. xii., p. 496) has made some experiments in regard to this point which are of interest. His researches point to the conclusion that the nutritive value of boiled milk is less than that of unboiled milk; for while the quantity of nitrogenous substances in ordinary milk which escape assimilation is 6.42 to 7.62 per cent., in boiled milk they are 7.86 to 8.79 per cent.; and similarly, as regards the fatty constituents, 2.8 to 4.85 per cent. escape assimilation in ordinary milk, but in boiled milk 4.53 to 6.99 per cent. In cases where only small quantities of milk can be taken, and that alone, these differences may be of importance.

3. Influence of cold-water enemata, &c., upon assimilation.

Aristoff (*St. Petersburg Inaug. Dissert.*, 1889, No. 16, p. 42, and *Med. Chron.*, vol. xii., p. 273) conducted experiments upon fourteen soldiers, by injecting 1 litre of water, at a temperature of 38° C., into the bowel twice daily, for a period of three weeks, and noting the variations in the assimilation of nitrogen. The dietary consisted of roast beef, semolina-gruel, mustard, milk, white and rye bread *ad libitum*. The results obtained were as follows:—

1. In healthy subjects the assimilation of food nitrogen was much improved, the effect sometimes lasting for a few days after discontinuing the injections.

2. In patients suffering from constipation, however, the enemata invariably lowered the assimilation, the decrease remaining still more or less marked during the after-period.

3. In the healthy the body-weight increased as the assimilation improved ; but in the constipated it decreased.

4. In both the healthy and the constipated, the daily amount of urea increased during the enema period ; but the effect was more pronounced in the latter.

5. Appetite was decidedly improved.

Aristoff offers, as an explanation of these differences, the following considerations :—In the healthy, the enemata liquefy the fæces, and hence assist the absorption of nitrogenous matters therein contained ; they also increase peristalsis reflexly, favour the secretion of bile and the vigour of the abdominal circulation, and by these means promote digestion and absorption. But in the constipated, the absorption by the rectal mucous membrane is considerably lowered, while all the other effects cannot develop, owing to the dejections occurring more rapidly than in the healthy.

Statzkevitch (*St. Petersburg Inaug. Dissert.*, 1889, p. 52, and *Med. Chron.*, vol. xii., p. 205) has made experiments upon six healthy men as to the influence of cold general douches on the assimilation of fats and proteids, and finds that in four of the cases the assimilation of both food constituents was increased to the extent of 1·22 and 1·84 per cent. respectively. In two cases, however, the subjects being somewhat irritable persons, an opposite result was noted. It is suggested that by a careful selection of a suitable temperature of water, favourable results could in any given case be obtained.

4. Assimilation of food-stuffs in disease.

C. van Noorden (*Zeitschr. f. klin. Med.*, xvii., p. 137), as the result of exact determinations of the amount of food-stuffs actually made use of when the stomach is diseased, comes to the following conclusions : In cases where the hydrochloric acid secretion is totally deficient, as in functional interference with stomach digestion, a diet consisting of milk, eggs, white bread, raw meat and butter, was almost totally digested, even though fairly large amounts of food were administered. In the first case 91 grammes of albumen, given daily, were digested, all but 7 per cent. ; and of 70 grammes of fat, only $4\frac{1}{2}$ per cent. were unconsumed. Again, in one case of hyper-secretion and hyper-acidity only $8\frac{1}{2}$ per cent. were undigested out of 95 grammes of albumen, and 5 per cent. of 102 grammes of fat.

5. Anorexia.

Penzoldt, of Erlangen (*Therap. Monatsh.*, 1890, p. 59), has published a report of very accurate and careful observations upon the hydrochlorate of orexin, as he has termed the drug, in reference to its

action in promoting the gastric secretion and removing anorexia. The body has a very complex composition, containing three benzyl molecules. Its physiological action was investigated by **Hofmann**. In frogs it produced death, with paralytic symptoms, and a dark colouration of the blood. In warm-blooded animals tremor, cramps, and dyspnoea, were observed after its administration. Its action upon the blood would seem to be pronounced, for the blood corpuscles were destroyed, and methæmoglobin was detected by the spectroscope. It may be remarked in passing that this destruction of the red-blood corpuscles is a marked action of many of the benzyl compounds, and is a clinical feature of poisoning by antifebrin and like bodies. A warning is not out of place that danger ensues therefrom, in using drugs of such composition. Penzoldt, however, concludes from the experiments described that the poisonous action of orexin is not important, since the dose given to rabbits, in order to produce these symptoms, would, weight for weight, correspond to no less for man than a dose of 375 grains. Hofmann himself, gradually increasing the dose, took at last as much as 15 grains before any poisonous symptoms appeared. The weight for weight argument does not seem to the reviewer sufficiently logical. With such drugs dangerous symptoms may develop in man long before the dose has reached that proportionately required by a lower animal. We have, however, Penzoldt's authority that the danger of using orexin is a minimum. The therapeutic value of the drug was suggested by the observation that when a dose of $7\frac{1}{2}$ grains was reached a strong feeling of hunger appeared, and this was still more marked with higher doses. Experiments were then undertaken by **Munter** to investigate the action of the new drug upon gastric digestion. A test-meal was taken, consisting of 1,050 grains of white bread, or 3,750 grains of beef-steak. After the consumption of this food, with and without the addition of 4 grains of orexin, specimens of the contents of the stomach were withdrawn by a sound each quarter of an hour, and it was found that the digestion of both the bread and the meat was hastened by at least half an hour by the use of the drug. Further experiments on another subject confirmed this result. The free hydrochloric acid of the gastric juice appeared at from half an hour to one hour earlier after the use of the drug than without it.

Penzoldt then investigated the action of the drug upon thirty-six patients under varying conditions, but all suffering from loss of appetite, which hindered the progress of cure. The patients experimented upon suffered from anæmia, tuberculosis, gastric catarrh, debility after operation, etc., and in

all but five the appetite was greatly increased by the administration of orexin. In a few cases doses had to be given for several days before the result was obtained. Several phthisical patients, too, increased in weight during the observations. No other beneficial result was noted than the increase of appetite, but no other unfavourable symptoms appeared than a burning sensation in the œsophagus, and in five cases vomiting. The drug was given in capsules or pills, and always, to avoid the irritative symptoms mentioned, together with a large cup of beef-tea. The dose administered was from 5 to 7 grains once or twice a day. Other more complex compounds of similar composition, containing the chinazolin group, had not equal effect. The author ventures upon no theory to explain the action of his new drug.

In a later communication (*Therap. Monatsh.*, 1890, p. 374) Penzoldt recommends that orexin should be given, not in pills, as he previously advised, but in wafer-paper, or in gelatine capsules, since the pills are not easily dissolved in the stomach.

The results obtained by **Martins** (*Deut. med. Wochens.*, 1890, No. 20) were in opposition to those of Penzoldt, albeit it must be stated he employed pills containing the drug, which Penzoldt condemns. In only 5 out of 29 cases was the appetite increased, and in 5 cases where no orexin was given, although the patient supposed he was taking the drug, an increase of appetite was observed.

[Penzoldt is so well known as a careful observer, that great weight attaches to the researches he has above published. More must yet be known concerning the action of this new drug before it can be unreservedly recommended for use in general practice. I would repeat the warning already mentioned about the ill results which may follow the administration of chemical bodies containing the benzyl group. Moreover, it must be remembered that anorexia is only a symptom, and that, while it is proper to relieve it directly, yet the true condition which gives rise to it must not be forgotten, and must be remedied by suitable means.—R. M.]

6. Vomiting.

Cartier (*Union Méd.*, 1889, No. 148, *Centbl. f. klin. Med.*, 1890, p. 292) treated vomiting, arising from various causes, with tincture of iodine, and obtained considerable success. This remedy proved most beneficial in the vomiting of phthisis, and the author recommends that it be tried in pregnancy, gastritis, and hysteria, in all of which it sometimes gave relief when other drugs had failed. The amount given was 10 drops of the tincture in water, to be taken in divided doses immediately after a

meal. No more serious symptom than a little coryza was ever observed.

Andeer (*Centblt. f. med. Wissen.*, 1889, p. 864) has found that chemically pure resorcin is a most efficient remedy for vomiting, whatever might be its cause. It was even efficacious against the vomiting of sea-sickness and that induced by metallic emetics.

[The comments made under the previous heading, with regard to treating symptoms only, apply with less force to vomiting than to anorexia. Vomiting is at some times so urgent and so dangerous in its results that it must be stopped without reference to its cause, even if this be discovered. I have found that the most efficient remedy for this purpose is pure carbolic acid in 2 minim doses as pills, and frequently repeated. It may be remarked, as a matter of pharmacological interest, that resorcin, which is recommended by Andeer, is a close relative of phenol, containing only one molecule more of hydroxyl in combination with the benzyl group.—R. M.]

7. Pyrosis or water-brash.

Alfred H. Carter (*Practitioner*, 1890, p. 321) defines the term pyrosis as "a paroxysmal condition, rarely occurring before puberty, generally beginning with pain in the epigastrium of variable severity, increased by movement, especially in the erect posture, but often relieved by complete rest and relaxation of the abdominal wall." The fluid, the voidance of which is characteristic of the disease, is regurgitated from the throat, and often escapes without muscular effort of any kind. There is no nausea or true vomiting. The fluid presents the following characters: It is thin and clear, alkaline in reaction, and contains no formed elements; the quantity varies from a spoonful up to a pint, or more. The attack may, and often does, culminate in actual nausea and vomiting, and it is only when this occurs that the above characters of the fluid are altered through admixture of the contents of the stomach. The clear fluid shows a dark coloration on adding ferric chloride, and always has some amylolytic action; in fact, it shows the properties of saliva. Dr. Carter holds that water-brash occurs in three classes of cases. In the first group there is no indication of gastric disease, and patients are generally neurotic women, often suffering from pelvic irritation, such as pregnancy. In the second group of sufferers, disorder of the stomach may be present or not, but the attacks of water-brash are traceable to some offending food. The third class of patients always present signs of disease of the stomach, and in them pyrosis occurs, as a rule, indiscriminately after every kind of food.

As regards the morbid physiology of this sign, Dr. Carter

disagrees with those writers who have traced the fluid to the stomach, and shows that the true water-brash liquid is saliva, paroxysmally secreted owing to a reflex act, seeing that there is no evident disease of the salivary glands.

The condition of body in which pyrosis is liable to occur is regarded by the author as analogous to that which predisposes to asthma. The seat of the irritation which leads to the septic discharge of saliva is, in the great majority of cases, the stomach, but, as in asthma, irritation in other organs may cause the paroxysm, and foremost among these are the ovaries and uterus. Dr. Carter further finds that many patients in whom the stomach was at fault showed dilatation and muscular insufficiency of that organ, as demonstrated by the salol test of Ewald.

As regards treatment, Dr. Carter recommends that opium, when given, should be administered in the smallest possible doses, and together with belladonna, which counteracts the constipating action of the opium and aids its sedative effect on the afferent nerve-endings in the gastric mucous membrane. The stomach, when primarily at fault, may be washed out regularly, and saline aperients should be given continuously for a moderately long time. A careful diet is, of course, required, and where the gastric catarrh is severe, alkalised milk alone should be given for a while.

8. Changes of the gastric juice in disease.

In Heart Disease.—Adler and Stern (*Berl. klin. Wochenschr.*, No. 49, *Fort. d. Med.*, 1890, p. 98).—These authors have investigated the composition of the gastric juice in cases of valvular disease of the heart. They find that free hydrochloric acid is present in the great majority of cases, but their experiments show that great dyspeptic troubles are by no means inconsistent with an apparently normal gastric juice, whereas in a few patients in whose gastric juice no free acid could be found the digestive process appeared to be quite undisturbed. The specimens of juice examined were removed one hour after an Ewald's test-meal, as described above. The results of these experiments are supported by similar ones made by Einhorn, and contradict a series of investigations by Hüfner, who, by allowing too short a time to elapse after the trial, was led to believe that the absence of hydrochloric acid was a common phenomenon in sufferers from cardiac valvular disease.

In Phthisis, etc.—Immermann "On the Functions of the Stomach in Tubercular Phthisis" (*Verhandl. des Congresses für innere Medicin, Wiesbaden, 1889, Fortschritte der Medicin*, 1889, p. 743), has arrived at the conclusion that in the majority of

cases of phthisis which are attended with gastric disturbance the digestive mechanism proper is not at fault; that therefore the gastric symptoms are to be attributed to nervous disorder. Even in cases attended with considerable fever, anorexia, and great general weakness, the author determined that digestion was completed in the normal time. The quantity of hydrochloric acid present in the gastric juice equalled that of health, and the peptic power of the gastric juice was normal.

Grasew (*Wratsch*, 1889, 15 and 16, *Centrblt. f. klin. Med.*, 1890, p. 92).—This writer, on examining the gastric juice of phthisical patients, found that thirty-six out of sixty-four specimens contained no free hydrochloric acid, and, moreover, discovered that the quantity of HCl. was lowered in direct ratio to the severity of the disease. He does not attribute this in any way to the presence of fever, and did not find that antipyretics altered the gastric juice. No mention is made as to the time allowed to elapse between giving the antipyretics and examining the secretion.

Chelmonski (*Revue de Méd.*, 1889, No. 7; *Centrblt. f. klin. Med.*, 1890, p. 19).—An examination of the gastric juice of several patients suffering from chronic lung disease *without any fever* led to the following results:—Fifteen patients suffering from chronic bronchitis and emphysema never showed free hydrochloric acid in the stomach; in two of these cases the acid returned after relief of the dyspnoea. The gastric juice of several phthisical cases showed an absence of hydrochloric acid, and was incapable of digesting albumin even when a sufficiency of acid was added. Some others which showed no acid reaction of the gastric juice were yet very slow in digesting albumin. Absorption from the stomach was delayed in all cases of phthisis. The writer attributes the faulty constitution of the stomach secretion to anæmia of the stomach or to chronic fibroid endarteritis; sometimes the blame is to be given to chronic hyperæmia of the stomach, and, more rarely, to amyloid degeneration of the vessels.

Brieger (*Deut. med. Wochenschr.*, 1889, No. 14; *Centrblt. f. klin. Med.*, 1889, p. 663) has found that in severe phthisis only 16 per cent of the patients showed a normal constitution of the gastric juice. All others showed great alteration of its characters, and in nearly 10 per cent the normal constituents of the juice were not found. In less grave cases the gastric secretion was not quite so frequently altered, but still showed, in the majority of cases, a deviation from the healthy secretion. In commencing phthisis half the total number of patients showed alteration of the gastric juice. Apparently both absorption from the stomach and the peristaltic movements of that organ were altered in direct

proportion to the changes observed in the gastric juice. In Brieger's opinion these changes are not merely functional, but depend upon gastric catarrh and its more remote consequences, such as atrophy of the gland cells.

In Fever.—Hildebrand (*Deut. med. Wochenschr.*, 1889, No. 14, *Centrblt f. klin. Med.*, 1889, p. 663).—This observer found an intimate relation to exist in cases of phthisis between the secretion of free hydrochloric acid in the gastric juice and the presence of fever. When there was any notable pyrexia, hydrochloric acid was absent, nor did it appear until the temperature had been down to the normal for about two days. The limit of temperature at which free hydrochloric acid disappears is fixed by Hildebrand's observations at 37.8° C. (=about 100° F.).

9. Dilatation of stomach.

Oser (*Med. Press*, Sept. 25, 1889) discusses at length the treatment of dilatation of the stomach, and considers the causes which give rise to it. Washing out the stomach, which has threatened to become a routine practice with our Continental colleagues, he considers to be an important proceeding in the commencement of the treatment; but where the dilatation is due to heart, kidney, or lung diseases, or to nervous disturbance, or to a superabundance of food, washing the stomach out will do but little good. Where stricture of the pylorus, too, is present, washing and limitation of fluids will be of no permanent avail. If the stricture is organic, no treatment is efficacious except the removal by the surgeon of the obstructing mass, where this is possible. Dr. Oser suggests that sometimes an ulcer of the stomach may cause spasmodic stricture of the pylorus, and that when the ulcer is healed by suitable means, the stricture, and with it its consequent dilatation of the stomach, will disappear. The treatment of this condition, where it is due to the use of excessive quantities of food, is obvious; the cause must be removed. But in the majority of cases the indications for treatment are to raise the tonicity of the gastric muscle and change or reduce the amount of the contents of the stomach. Professor Oser insists upon the diet containing as little fluid as possible. The fluid contents lie longer in the stomach, for the hard portions of the food stimulate the muscular walls to contract and expel them. The least possible amount of fluid which will satisfy the patient's desires must be given, and not together with the meals, but about an hour afterwards. The food must be limited in quantity, but given frequently, as often as five times a day. It should be in an easily digestible form, and green vegetables, white of egg, stale bread, and a little wine, should be prescribed.

Wettendorfer (*Therap. Monats.*, March, 1889, *Centrblt. f. klin.*

Med., 1889, p. 700).—Wettendorfer recommends the wearing of a Martin's bandage round the abdomen in cases of dilatation of the stomach or catarrh of that organ accompanied by flatulence or constipation. The action depends, in the writer's opinion upon the production of more intimate contact of the contents of the stomach with its walls, and consequent increase of movement and secretion.

10. Gastric ulcer.

Andrew H. Smith (*Philadelphia Med. News*, May 17, 1890) insists that the food should be as nearly as possible liquid, and its base should be milk; to peptonise the milk will prevent the formation of curds, which would act as solid food, and he suggests that the addition of a little coffee and sugar will hide the bitter taste of the peptones. No other diet should be allowed for the first week, for solid food is harmful, in that not only does it irritate the gastric mucous membrane, but also excites peristalsis. After the first week the patient may be allowed meat-broths, given in small quantities at a time. Generally, nutrition is kept up sufficiently well by such a diet, provided that there be no vomiting from gastric irritability; but if this be present, or if the patient's strength is failing, it is well to give additional food by the bowel. Solid food must be very cautiously introduced into the diet, and should consist, first, of some prepared infant's food, then of the yolks of eggs, and afterwards of scraped beef, chicken, &c. Dr. Smith recommends only one drug as having a specific action upon the ulcer, and that is nitrate of silver. This he gives in quarter to half-grain doses dissolved in an ounce of water, and administers it with the patient lying on the right side, so as to bring the solution into contact with the ulcer, if it be situated in its usual position near the pylorus. The pain is relieved by antacids and by a preparation which he styles milk of magnesia. This is prepared by precipitating a solution of sulphate of magnesia with ammonia, and washing the resulting hydrate of magnesia free from ammonia. Carlsbad salts, too, are useful to allay gastric catarrh and relieve the bowels. They should be given in doses of one or two teaspoonfuls dissolved in a pint of warm water before breakfast. Vomiting, Dr. Smith treats by causing the patient to suck ice, by morphia hypodermically administered, and by applying ice to the epigastrium. In hæmorrhage, the same measures are indicated; but the patient should lie on the left side, so as to remove the contents of the stomach from contact with the ulcer, and also bring the force of gravity to play in controlling the flow through the ruptured artery. Astringents and ergot he does not recommend; but in all cases of hæmorrhage, he feeds the patient by the

bowel, giving two to three ounces of defibrinated blood every four hours, continuing this practice for two or three weeks after the stomach has resumed its functions. A copious enema of tepid water should be administered every day to wash out the bowel.

McCall Anderson (*Brit. Med. Journ.*, 1890, i., p. 1057) in a clinical lecture gives an account of thirty-five consecutive cases occurring in his clinique. The treatment which he adopted was as follows:—The patient was confined strictly to bed. The diet consisted of fluid food in small quantities given frequently. The food consisted of milk and lime-water or peptonised meat, two ounces at a time; but if even a teaspoonful produced vomiting, rectal feeding alone was employed. This was carried out by giving a zymised milk or meat suppository every four hours, and each alternate four hours an enema consisting of three drachms of Carnrick's beef peptonoids mixed with two to three ounces of warm water. To relieve the constipation which so frequently occurs in such cases Carlsbad salts were used. Pain was relieved by opiates in small doses, or by a combination of hydrocyanic acid and bismuth. When hæmorrhage occurred it was treated by strictly rectal feeding, ice to suck, ice applied to the epigastrium, and morphia subcutaneously. It is important in these cases to remedy the anæmia which is so frequent an accompaniment, and for this purpose Dr. Anderson prescribed Bland's pills.

11. Cancer of the stomach.

Dujardin-Beaumetz (*Journ. de Médecine*, 1890, p. 519) lays down as the special indications for treatment, the maintenance of complete antisepticity of the stomach, and the ordinance of an appropriate diet. The antisepticity can be best carried out by means of salicylate of bismuth, naphthol, or salol, which should be given in wafer-paper before each meal. The following are some of the formulæ he proposes:—

FORMULA I.

Salicylate of bismuth.
Magnesia.
Bicarbonate of soda \mathfrak{ss} 150 grains.
To be divided into thirty doses.

FORMULA II.

Salicylate of bismuth.
Naphthol β .
Powdered charcoal \mathfrak{ss} 150 grains.
To be divided into thirty doses.

FORMULA III.

Salicylate of bismuth.
Salol.
Bicarbonate of soda \mathfrak{ss} 150 grains.
To be divided into thirty doses.

The diet should, according to the author, be exclusively vegetarian, in order to give the stomach as much rest as possible, by diminishing the amount of digestive work.

Pain must be relieved, and for subcutaneous injection the following formula is recommended.

Hydrochlorate of morphia	1½ grains
Neutral sulphate of atropine.. .. .	$\frac{1}{10}$ of a grain
Distilled water	2 drachms

of which a whole syringe-ful is to be injected.

If the cancer be situated at the cardiac end of the stomach, it must be treated like a stenosis of the œsophagus, and only liquid food or powdered meat be given. If it is at the pylorus and is accompanied by dilatation of the stomach, the stomach should be washed out with a solution of naphthol 1 in 1000, or of salicylate of bismuth and salol.

12. Gastritis emphysematosa.

E. Fraenkel (*Virchow's Archiv*, Bd. cxviii., *Heft 3*; *Centbl. für klin. Med.*, 1890, p. 404).—A case is reported of what the writer terms "gastritis emphysematosa." The patient, an apparently healthy man of thirty-five, was seized about a week after receiving a compound fracture of a finger with pain in the stomach and hæmatemesis, and died collapsed in two days and a half. The wound showed no sign of septic infection. On making a post-mortem examination it was found that the gastric mucous membrane was widely and considerably reddened, and raised in prominences, which were due to accumulations of gas in the submucous tissue. Around the air-distended meshes of submucosa the vessels were extremely congested, and there were many hæmorrhages. In the walls of these air-spaces there were found rod-shaped bacteria presenting morphologically a great resemblance to the bacilli of anthrax. Their number was very great, and this was most marked in the immediate neighbourhood of the microscopic changes. Towards the surface of the mucosa, and towards the deeper parts, in the direction of the muscular coat, these numbers rapidly diminished. The author therefore infers that the bacilli were the cause of the changes visible in the stomach, that they obtained an entrance into the body by means of the wound in the finger, without visibly affecting the same. As to their nature Dr. Fraenkel gives no opinion, but he feels justified in concluding that the bacteria were not those of anthrax, because they failed to show the characteristic arrangement of the latter micro-organism in the vessels, and because the changes

which the anthrax bacillus produces in the stomach were not present in this case.

13. Ulcer of the duodenum.

Bucquoy (*Arch. Gén. de Méd.*, 1887; *Cenlblt. f. klin. Med.*, 1890, p. 73).—The writer draws attention to several signs of diagnostic value in ulcer of the duodenum. Amongst these is hæmorrhage from the bowel, occurring in persons of apparently good health, and repeated on several successive days. Sometimes hæmatemesis is seen. Pain, when present, is generally situated beneath the liver, to the right of the middle line. Occasionally violent colicky pains were observed, which generally occurred three to four hours after taking food. Five cases of this disease are reported by the author.

After burns.—Southam (*Lancet*, 1890, i, p. 168) records a case of extensive burns of the face, arms, and thighs, which proved fatal on the twelfth day. The temperature was 103.2° , or thereabouts, up to the fourteenth day, when it rose to 110.2° , and pain and tenderness in the epigastrium were noticed during the last few days. After death, two well-defined irregular ulcers, the largest $1\frac{1}{2}$ inch by $\frac{3}{4}$ inch, were found in the duodenum. Their bases were formed by the muscular coat, and they were surrounded by a congested area. Mr. Southam suggests that, if high temperatures are common in such cases, Hunter's theory would be supported, that the duodenitis is caused by the excretion in the bile of some irritant matter formed during the disintegration of the burnt tissue.

[Surely the occurrence of duodenal ulcer after burns is not so common as is generally believed. I have never met with it, although I have made many post-mortem examinations of such cases. Possibly some exceptional circumstance, such as the occurrence of hyper-pyrexia, as recorded above, is essential for its production.—R. M.]

14. Typhlitis.

Dr. Foxwell (*Birmingham Med. Rev.*, July, 1890, p. 1) states that the treatment of typhlitis may be considered to be of four kinds—two medical and two surgical. The first medical treatment consists of saline purges, to remove faecal obstruction, which is the usual cause of the inflammation, and to keep up a sufficient amount of peristalsis, to promote the absorption of the effused products. The danger of this course, Dr. Foxwell maintains, is a minimum if the obstruction is confined to the cæcum; but the lower bowel should first be emptied by one or two enemata, to obviate any necessity for dangerously powerful peristalsis of the colon. The second kind of treatment is that by opium, and this is applicable

to all acute cases where operation is not decided upon. The drug should be used freely, in say 10 to 15 minim doses of Tinctura Opii every hour. With this treatment also it is desirable to cleanse the lower bowel with one or two enemata, and afterwards to ensure continued peristalsis by small doses of calomel and a morning saline draught.

The surgical measures which are advisable are simple incision and removal of the appendix vermiformis. Mr. Lawson Tait, in response to the question, "When would you operate?" says, "So soon as ever I had diagnosed typhlitis." With this dictum Dr. Foxwell does not agree entirely. Where there is evidence or strong suspicion of pus being present, incision should at once be made; but there exists a large number of cases in which operation is not desirable. Again, operation is undoubtedly necessary if perforation has taken place. If appendicitis from the presence of a foreign body be diagnosed, but no signs of approaching perforation or suppuration be detected, Dr. Foxwell would not operate, unless the patient were a child, when he would do so for these reasons:—(1) Children are more liable to perforation and abscess. (2) These complications often occur speedily, and with little or no warning. (3) Children are more likely to be exposed to injury than adults, and so to suffer a traumatic perforation.

The radical cure by operation is of doubtful advisability, and only to be thought of where there are relapses, and the patient is never quite well in the intervals between the attacks. Where, however, there is relapsing appendicitis, and the cause of the irritation persists in the form of a foreign body, or some constriction or twist of the organ itself, the appendix should be either removed, or, possibly, if it is healthy and free, incised, and its contents evacuated.

Maurin (*Journ. de Méd.*, 1890, p. 412) lays down similar laws for the treatment of appendicitis; but says that the appendix should always be removed, and on no account should an exploratory puncture be made.

15. Intestinal antiseptics.

Cantani (*Deutsche med. Zeit.*, No. 43, 1890, and *Brit. Med. Journ.*, Suppl., Oct. 4, 1890) considers it doubtful whether antiseptics given by the mouth ever reach the intestine, since they are probably absorbed in the stomach. Calomel has been given with this view, and is of use if the mischief is not great.

The anti-fermentative treatment of diarrhoea.—Dr. Luff, in a paper read at the Harveian Society (*Lancet*, vol. ii., 1889, p. 1285), while admitting that there were probably several irritating

substances resulting from the fermentation of milk, contended that the milk or cheese ptomaine, tyrotoxin, was chiefly to blame for the fermentations going on in acute diarrhœa, especially that of infants. Carbolic acid, creasote, &c., had been tried to check putrefactive changes in the intestine, but he used $\frac{1}{10}$ gr. doses of biniodide of mercury, dissolved in iodide of potassium, combined with 1 grain doses of chloral hydrate. It was shown experimentally that biniodide of mercury was extremely soluble and diffusible, and had the property of rendering tyrotoxin insoluble. Dr. Luff has detected biniodide of mercury in the urine within two hours of giving it by the mouth. He has not found it act as an intestinal irritant. In eighty cases thus treated the diarrhœa ceased within two days in seventy-two cases; in five, in four days; and in no case did it last seven days.

16. Mucous colitis.

Bouveret (*Journ. de Médecine*, 1890, p. 518) has had great success in the treatment of this disorder with injections of chlorate of potash in the proportion of 4 to 6 grammes to 400 or 500 grammes of water. The injection should be administered in the morning, the patient being in bed, and after defæcation the injection should be retained as long as possible, half an hour or an hour at least.

17. Dysentery.

Ferrous sulphate.—In an epidemic of dysentery in Fiji amongst Polynesian emigrants, Dr. C. Daniels (*Practitioner*, Nov., 1890, p. 346) found that ipecacuanha was of no use, but the best results were obtained from frequent doses of ferrous sulphate and salicylate of sodium. The mortality in cases so treated was 17·5 per cent.

Alum enemata.—Hepburn (*Lancet*, vol. ii., 1889, p. 432) describes a case of dysentery in a patient aged 27 years, which was of six days' duration when he was first called in. Lead, opium, bismuth, ipecacuanha, and many astringents, had failed. There were then tried enemata of alum, half an ounce to half a pint of water twice daily. These caused much pain, but the condition of the patient soon improved, and after two days he was so much better that the injections were discontinued. A relapse occurring two days later, the injections were repeated for four days, and for another four days one injection a day was given, when uninterrupted recovery took place.

Norbury (*Lancet*, vol. ii., 1890, p. 78), having read the account given by Hepburn, tried the same treatment in a seaman aged 33, who had suffered from dysentery 3½ years before, and had frequently had subsequent attacks, which had rendered him very

emaciated. Many remedies had been tried without benefit, but at last an enema of half an ounce of alum dissolved in half a pint of water was administered every night and morning. In two days great relief was obtained, and after eighteen days the treatment was discontinued. The patient gained flesh and resumed his work, and felt better than he had done for years.

Creolin enemata.—*Soswinski* (*Lancet*, vol. ii., 1889, p. 232) employs in the treatment of dysentery large enemata of a $\frac{1}{2}$ per cent. solution of creolin. About five pints were injected from two to four times daily, and no pain was caused thereby. Of sixteen cases thus treated not one died, although many others occurring in the same epidemic and treated differently were fatal. In two cases the disease ceased after two injections. In two other cases bloody stools ceased after the third day, in two on the fifth day, in one on the sixth, in one on the ninth, and although the other cases were more obstinate, complete recovery eventually ensued. *Kolokoff*, also using a 1 per cent. solution, obtained similar results.

Sulphate of copper.—*Esby* (*Lancet*, ii., 1889, p. 759) relates a case in which an injection of 10 grains of sulphate of copper, 1 drachm of tincture of opium, and 4 ounces of water, gave great relief. Rapid recovery resulted in two days.

Perchloride of mercury.—*Chowdhavry* (*Lancet*, ii., 1889, p. 901) remarks that the large doses of ipecacuanha, which have been found to be of great use in treating the dysentery of India, are often inadmissible, by reason of the nausea thereby invoked preventing the patient from taking a sufficient amount of nourishment. Small doses of 3 to 5 grains with soda and gum were very useful in acute cases, but useless when the disease had become chronic. Believing that the beneficial action of the drug was due to its stimulation of the liver secretion, Chowdhavry tried also the perchloride of mercury in small doses. He gave five minims of the liquor in two drachms of water every four hours, and found that complete cure often resulted even in chronic cases.

Bisulphide of carbon.—*Jakotloff* (*Lancet*, i., 1890, p. 1142) gave 3 to 5 grains of bisulphide of carbon in half a tumbler of water or milk, with a little peppermint, and at the same time $1\frac{1}{2}$ grains of bisulphide dissolved in $1\frac{1}{2}$ ounce of water was injected into the rectum twice daily. Previously, calomel was administered, so as to clear out the bowel. Great and rapid improvement followed this treatment.

18. Intestinal obstruction.

General treatment.—*Nothnagel* (*Wiener Med. Blätter*, 1889, Nos. 12 and 13; *Centblt. für klin. Med.*, 1889, p. 679). The author,

speaking of the treatment of ileus, recommends that the peristaltic action of the part of the bowel below the obstruction be stimulated by injections of water or salt solution, or cold aerated water, and that opium be given for the accompanying collapse. No food at all is allowed, and all purgatives are rejected as dangerous. Massage and electricity are alike condemned by Nothnagel; but washing out the stomach, as first practised by Kussmaul, though not affecting the obstruction, gives relief to the patient, and may therefore be employed. As regards the main symptom, stercoraceous vomiting, Nothnagel is of opinion that it is produced, not by an anti-peristaltic movement of the gut, but simply because the intestinal contents, pressed upon by the abdominal muscles and diaphragm during the severe reflex vomiting, escape in the only way open to them—that is, upwards.

Puncture.—Rosenbach (*Berlin klin. Wochenschr.*, No. 17, 1889; *Centblt. für klin. Med.*, 1889, p. 696). The author strongly recommends that puncture be made into the distended intestines in cases of bowel-obstruction. The immediate effect of this treatment is, as a rule, large diminution of the meteorism, and a simultaneous cessation of the pain and nausea. Much time may by this means be saved in cases which can be relieved by operation. The author has seen no ill-effects from such puncture, and has performed this little operation with the needle of a hypodermic syringe.

Injection of ether.—Dr. Clauso (*Lancet*, 1890, ii., p. 365) records two cases of intestinal obstruction in which, after failure of ordinary treatment, he injected a mixture of sulphuric ether ʒiii in ʒxii of fennel water with complete success, a copious stool being passed after eructations smelling of ether.

Massage.—Niles (*Lancet*, i., 1890, p. 1121) gives an account of a case of acute intestinal obstruction from impacted gall-stone, which ended in recovery. The patient suffered from pain in the right iliac region, vomiting, which became stercoraceous, and extreme collapse, while no action of the bowels had taken place for some days. Manipulation of the right iliac region caused something to move, and relief was at once experienced. A large gall-stone afterwards came away in an enema.

Thomas (*Lancet*, 1890, i., p. 398) also advises that in cases of intestinal obstruction, and other abdominal affections, massage is worthy of more consideration than it formerly received. He enforces his remarks by the report of two cases thus treated by him. In the first a man had suffered from a large swelling in the abdomen on the left side, supposed to be malignant in character and causing obstruction of the bowels and tympanites. Enemata of

gruel relieved him somewhat, but the obstruction recurred. Then, together with the injections, massage of the mass was practised, and complete relief with subsidence of the tumour resulted. In the second case constipation was also relieved by massage and injections.

[In obstruction of the bowel from accumulation of feces, massage, intelligently practised, is undoubtedly of great use. A treatment, recommended by the late Dr. Begbie, by calomel is also frequently very efficacious. For an adult 2 grains should be given every two hours, with a little extract of belladonna. It will either remove the obstruction or cause vomiting. If the latter symptom ensue, the treatment must be abandoned.—R. M.]

19. Intussusception.

Finlay (*Lancet*, 1889, ii., p. 110) treated a case of intussusception, where a distinct sausage-shaped tumour was felt, by inflation. Under chloroform air was injected into the rectum by means of a bellows and an indiarubber tube. The abdomen became somewhat distended, and the tumour disappeared, recovery resulting, though vomiting occurred throughout the night after the operation.

Two other cases treated successfully in a similar manner are recorded in the *Lancet*, 1890, ii., p. 61, and the *Brit. Med. Journ.*, 1890, i., p. 1300, and ii., p. 19.

Davis (*Brit. Med. Journ.*, 1889, ii., p. 981) observed a case of intussusception with tumour in the right iliac region, stercoraceous vomiting, etc., in which recovery resulted when the patient was inverted for fifteen minutes.

20. Constipation.

Cascara wine (*Therap. Monatsh.*, 1890, p. 320).—R. Extract cascarae sagradae, part. i.; vini xerensis, part. ix. S. One liqueur or sherry glassful to be taken daily.

Glycerine injections.—Palubinski (*Deutsche med. Zeitung*, June 19, 1890) has made a large number of observations upon the effects of glycerine suppositories and injections, and concludes that there is no doubt that glycerine irritates the mucous membrane of the rectum. The irritation does not produce any local secretion. The best results were obtained when the rectum and sigmoid flexure were filled with scybala, or when the feces were of excessive density and evacuated with pain.

Lüderitz (*Berl. klin. Wochenschr.*, 1889, No. 13, and *Centblt. für Med. Wissensch.*, 1889, p. 735) has investigated in animals the effect of glycerine clysters, and finds that they produce hyperæmia of the mucous membrane and a withdrawal of water from the vessels, and by these means provoke defecation.

21. Anthelmintics.

Egusse (*Bullet. général de Thérap.*, Aug. 15, 1889; *Centralblatt f. klin. Med.*, 1890, p. 142).—Two anthelmintics are recommended by the author. The first is the areca nut, whose efficacy modern researches by Marmé show to be due to arecolin. This alkaloid has an action allied to that of muscarin. It tends to produce arrest in diastole of the frog's heart; in cats death occurred by cessation of breathing before the heart was affected. The alkaloid is a strong myotic, and in small doses increases intestinal peristalsis.

The second vermifuge is the albumin of the cocoanut, whose anthelmintic properties have long been recognised in India. Its pleasant taste and cheapness recommend this drug, but the quantity required is great, the albuminous matter of an entire nut being necessary to produce any effect.

For the removal of the *Oxyuris vermicularis*, it is suggested in the *Union Médicale* (quoted in *New York Med. Journ.*, July 12, 1890, p. 47) that cod-liver oil should be used as an enema according to the following formula:—Cod-liver oil, 10 drachms; the yolk of an egg; water, 4 ounces. If this fails, then an injection of pure cod-liver oil is recommended.

[It must be remembered, however, that the principal seat of the oxyuris vermicularis is not the rectum but the cæcum, and injections cannot remove all the parasites. Santonin is the best treatment for such cases, but general tonics should also be given, since the subjects are usually in bad health.—R. M.]

Poisoning by santonin.—H. Cramer (*Deut. Med. Wochenschrift*, 1889, No. 52; *Centralblatt f. klin. Med.*, 1890, p. 421) reports a case of severe poisoning by santonin in which the symptoms resembled those of febrile icterus or "Weil's disease," and bore no resemblance to those usually met with in santonin intoxication. The patient, a child aged four years, was given a preparation containing santonin as she was suffering with ascarides. Shortly afterwards she was seized with shivering, fever, vomiting, and diarrhœa. On the third day slight jaundice was observed, together with cedema and albuminuria, the urine showing casts and blood. There were enlargement of the spleen and pain in the region of the liver, together with great general weakness and headache. The jaundice and albuminuria persisted for ten days, while the fever gradually diminished, and the patient recovered without further symptoms. Except the headache and somnolence there were no signs of affection of the nervous system. As a proof that various causes may produce the same symptoms, the author gives the case of a child of seven which sucked some icicles. The signs and symptoms were the same as

in the last patient, with the exception, it appears, that there was constipation and that headache was absent.

22. Gall stones.

Pilocarpine.—Witkowski (*Bull. Gén. de Thérapeut.*, October 12, 1889, and *Med. Chron.*, vol. xii., p. 45) strongly recommends the use of subcutaneous injections of pilocarpine in the treatment of jaundice due to gall-stones. One patient whose case he describes suffered from nephritis, complicated with biliary calculi, enlargement of liver, jaundice, ascites, and dropsy of the legs. Carlsbad waters produced some slight improvement, but at each menstrual period the jaundice, as well as the hepatic colic, returned. Morphia gave no relief to the pains of colic. When, however, pilocarpine was injected to the amount of one-sixth of a grain, once or twice daily, notable relief of the pains was immediately experienced, and the liver became less tender. In three weeks the jaundice, and also the pain and enlargement of the liver, had entirely disappeared, the patient remaining well three years after the observation. In all of thirty other analogous cases the author had seen equally beneficial effects. No results were obtained in jaundice from tumours of the liver, and so confident is the author of the effects of this remedy in chosen cases, that he recommends it also as a means of diagnosis between malignant disease of the liver and gall-stones. If the pilocarpine produces no relief to the jaundice after ten to sixteen days, carcinoma of the liver, he thinks, should be suspected. The pilocarpine has a depressing effect upon the heart, and therefore the condition of this organ should be carefully ascertained before commencing the treatment.

Manipulation.—It has many times been suggested, and at times the suggestion has been successfully put into practice, that gall-stones may be extracted from the gall-bladder by external manipulation. Wylie (*Brit. Med. Journ.*, ii., p. 819), during 1890, tried this process in a case in which a gall-stone had been impacted in the common bile-duct for five months, and had caused severe jaundice and wasting. He pressed gently on the gall-bladder, and perceived that in so doing he displaced its contents. In twenty-four hours a gall-stone the size of a hazelnut was found in the fæces. Also in another case, of four months' duration, he pursued the same treatment with success.

Olive oil.—Notices of the treatment of gall-stones by the exhibition of olive oil will be found in previous issues of the "Year-Book." In a paper read before the Berlin Medical Society, an abstract of which appeared in the *Lancet*, 1890, i., p. 483, Rosenberg has fully investigated the action of this remedy. He reports

three successful cases, and advises that the treatment be used if other means have failed to remove the gall-stones, and apparently it only remains to consider the question of operative measures. He states in addition that whereas the remedy was tried in twenty-one cases, in only two did it fail to relieve. He found also, by experiment, that large doses of olive oil increased the flow of bile and lessened its consistence, and he gives, in his original paper in the *Therapeutische Monatshefte*, an instructive series of curves illustrating this. He remarks, too, upon the authority of Cantani, that gall-stones are very rare in Italy, where more olive oil is taken as food than in other countries.

In the discussion which followed the reading of this paper at the Berlin Medical Society, Virchow said that he believed the oil was absorbed from the intestines and re-secreted by the liver with the bile. Thus the biliary ducts were washed out by the oil.

Relation of gall-stones to carcinoma. — H. Zenker (*Deut. Arch. f. klin. Med.*, Band xlv., Hft. 2 and 3, *Centblt. f. klin. Med.*, 1889, p. 623) has investigated the question of the causal relation between gall-stones and cancer of the gall-bladder. The conclusion arrived at is that the malignant process in these cases starts in much the same manner as does a cancer of the stomach from the edges of a benign ulcer. Zenker was able to find, on microscopic examination, that cicatrices of the gall-bladder, caused by the presence of gall-stones, were accompanied by an excessive growth of epithelium, not only in the gall-bladder, but in the adherent parts, such as the transverse colon or common bile-duct. Where the point of transition lies between such a typical epithelial growth and the commencement of actual cancer it is not possible to say. The author holds that the passage from one to the other is gradual, and that old age is a predisposing cause owing to the tendency which it brings with it to a relative excess in the tissues of epithelial elements, whilst the exciting cause is the repeated irritation by the gall-stones, which stimulate the epithelium proliferation to excess.

23. Salicylate of soda as a cholagogue.

Stillier (*Therapeut. Monatshefte*, March, 1890, and *Med. Chron.*, vol. xii., p. 48) regards salicylate of soda as a most energetic cholagogue. He recommends its use in cases of gall-stone, and believes that it leads to certain and quick cure. Fifteen grains are to be given four times a day, dissolved in half a glass of soda-water or an alkaline carbonated water, to this he also adds one-sixth of a grain of extract of belladonna, and at the same time he applies other therapeutic remedies. The diet is to be as far as possible fluid, an iron-free carbonated water being used as a drink,

while to the hepatic region a warm linseed poultice is to be applied daily. The after cure consists of a course of the waters at Carlsbad or Vichy.

[The salicylate of soda is a very useful remedy also in catarrhal jaundice. Its physiological action is to render the bile more fluid.—R. M.]

24. Urobilin icterus.

Leube (*Sitzungsber. d. physikal. Med. Gesellschaft zu Würzburg*, 1888; *Centralblatt f. klin. Med.*, 1889, p. 838) has endeavoured to settle the vexed question as to whether or not there exists a form of jaundice due to the presence in the blood of urobilin in place of bilirubin which is the common pigment. The patient examined was a woman suffering from prolonged deep jaundice, in whom, however, the urine failed to show a trace of bile pigment. Subcutaneous injections of pilocarpine were used, and the sweat so created was found to contain no trace of the expected urobilin, but plenty of bilirubin. Gmelin's test had never answered with the urine, but this secretion always gave the urobilin reaction of a green fluorescence when treated with zinc chloride and ammonia. It is therefore assumed that the bilirubin causing the icterus was completely reduced in the kidney.

25. Books published during the year.

There appeared during 1890 two large and important systematic treatises upon diseases of the stomach and digestive organs, both in Germany.

Leo ("Diagnostik der Krankheiten der Verdauungsorgane," Berlin, Hirschwald) has published a most exhaustive work, which will be valuable for reference to all those engaged in research. All the newest methods of examination are reviewed, and the diseases of the stomach, liver, intestines, and peritoneum, are described in detail by a practised observer. A chapter is added upon the changes of the urine which may be met with in digestive disorders. A special feature of the work is the careful manner in which the chemical manipulations now necessary for a thorough examination of the secretions are described. The ætiology and symptomatology of the diseases of the liver and of gall-stones are placed in tabular form for convenient comparison.

Boas ("Allgemeine Diagnostik und Therapie der Magenkrankheiten," Leipzig, Thieme) has issued a work of similar character, but less comprehensive and more clinical. Treatment in this work receives ample consideration, and is described under the heads of dietetics, balneotherapy, massage, electricity, drugs, etc. In this work also clinical chemical pathology is discussed in detail, and full references are given to authors quoted.

DISEASES OF THE KIDNEY, DIABETES, ETC.

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1. Albuminuria.

Last year the principal contributions related to the nature of those anomalous forms of albuminuria which are apparently independent of inflammatory lesions of the kidneys, whilst the practical bearing of the year's work as regards albuminuria was towards a more hopeful view as to the nature of the disorder. This year we have to direct attention to the ably expressed views of Senator, Ziemssen, and Dujardin-Beaumetz, with regard to the treatment of albuminuria, the result of chronic Bright's disease. The *Therapeutic Gazette*, June 16, 1890, gives a very full summary of the recent discussion as to the treatment of chronic Bright's disease, opened by Professor Senator at the Ninth Medical Congress at Vienna. Senator, under the term chronic nephritis, referred all diffuse inflammatory alteration of the renal apparatus attended with the presence of albumen in the urine. Two principal forms, however, are to be recognised, viz., the chronic parenchymatous nephritis, or the large white kidney, where the lesions are localised in the epithelium of the urinary tubes; and interstitial nephritis, or small granular kidney, which is slower in its evolutions, and is characterised by the production of connective tissue and consecutive contraction. These two forms of nephritis have determining causes, and the hope may suggest itself that in the removal of these causes we may cure, or prevent the evolution of the disease. Senator, however, believes that this can be rarely possible, even with cases of acute nephritis. Passing in review the various causes of chronic nephritis, such as cold, dampness, and constitutional diseases, such as syphilis, malaria, plumbism, gout, pregnancy, etc., he points out that whilst their mode of action is too indeterminate to give us points in prophylaxis, they also rarely assist us in therapeutic indications. As a consequence the treatment of chronic Bright's disease is best met by the treatment of symptoms. Senator points out that antiphlogistics are of

no value, for the kidney itself is too deeply seated to be directly acted upon, whilst the reflex action of the organ itself is too feeble to determine an influence on renal lesions. Outaneous irritants should be avoided therefore as useless; they may be also dangerous. There are few medicines which can be said to act directly on the diseased kidney, though astringents have been said to cure and rapidly diminish albuminuria, but this is doubtful. Even ichthyol, which acts so well in chronic inflammation of the skin, has no action on the inflamed kidney. But this impotence of direct therapeutic treatment does not admit that chronic Bright's disease is an affection which should be allowed to go to its inevitable fatal termination. The principle which should govern the treatment is by giving the organ rest, for by restricting its activity its physiological function is greatly restored. The accumulation, therefore, of toxic substances in the economy is to be prevented as the first step to be taken in the treatment. And this is best effected by suitable regulations as regards diet. Little albumen should be given and large quantities of fat and carbohydrate. Thus, for an adult the diet should be confined to 1,265 grains of albumen, 480 grains of fat, and 7,500 grains of carbohydrates. If, however, the amount of fat be doubled or trebled the albumen may be lessened one-half, but albumen cannot be altogether left out, lest the digestion of carbohydrates and fats be interfered with. The most digestible fats are cod-liver oil and cream. As regards albumen, milk contains enough for the need of the economy. Although Senator approves of a milk diet, and of giving the patient from two to three quarts of milk a day, he does not advise its exclusive use. Koumiss or képhir are likewise useful, chiefly from the alcohol and lactic acid they contain. Meats which are poor in ptomaines, such as fish, white meats, etc., are to be preferred to red meats. Eggs may be allowed, but not in large quantities. The ingestion of a considerable amount of fluid is to be advised in chronic Bright's disease, but beer being rich in extractive matter is absolutely contra-indicated. Exercise must be limited as much as possible, since it leads to the production of extractive in the economy. Digitalis, strophanthus, and caffeine, may sometimes prove serviceable, but must be carefully watched. Iodide of potassium in cases of interstitial nephritis often proves of value, but its effect on the heart must be watched. Smoking, from its deleterious action on the blood-vessels, should be forbidden.

Professor Ziemssen, in reply, approved of the distinction drawn by Professor Senator between the parenchymatous and interstitial forms of nephritis as indispensable from a therapeutic point of

view. *Parenchymatous nephritis* demands diuretic treatment, but the use of drugs in this form of nephritis is especially dangerous. The true treatment is the milk diet combined with vigilant attention to hygiene. Hot water and vapour baths must be employed to maintain the activity of the circulation. Should the blood-pressure become notably reduced, then digitalis must be employed. Theobromine in small doses is of value (*vide* § 27) as a diuretic, as it does not irritate the renal organs. Calomel is powerless to relieve the œdema of Bright's disease. Bitartrate of potash is the best cathartic for this purpose, whilst capillary drainage often proves of great service. *Chronic interstitial nephritis* offers a double indication for therapeutic measures—(a) a general state, as to the cause, syphilis or arterio-sclerosis; (b) complications in the organs of circulation. As regards the first it is necessary to submit the patient for a long time to iodide of potassium, to a regular mode of life, and to send him to a warm climate. For complications arising from excessive blood-pressure, the patient should be confined to bed, revulsives applied to the precordial region, and even bleeding if uræmic accidents are impending.

2. Treatment of renal insufficiency.

Professor Dujardin-Beaumetz (*Bull. Gén. de Thérap.*, No. 30, May, 1890) says we are not to attach too great an importance to the quantity of albumen, but rather to divert the attention to the proportion of solid matters, and the presence of toxins in the urine. In cases of renal insufficiency there are two indications to fulfil—to favour as much as possible the elimination of the toxins accumulated in the economy, and to reduce to a minimum the amount of these introduced by food, or which result from the processes of assimilation or dis-assimilation. To meet the first we have to employ purgatives, sudorifics, and diuretics. At the head of the latter Professor Beaumetz would place digitalis and digitaline; next to these, strophanthus. Though some authorities have declared strophanthus causes nephritis, he has never seen such an effect produced, and he has obtained certain beneficial results from the drug in cases of renal insufficiency, whenever the alterations of the kidney structure has not been great. Sparteine, adonis, and convallaria, hold only a secondary place as diuretics, but caffeine holds a preponderant place; it has, moreover, the advantage of being suitable for administration in hypodermic injection, for which the following formula is useful:—

R.	Pure caffeine	...	...	...	...	} 2 grammes.
	Benzoate of sodium	...	...	...	...
	Boiled water	...	...	...	...
					...	6 grammes.

Inject a full syringe-ful two or three times a day. By the side of caffeine theobromine should be placed, which, according to Gram (*vide* § 27), has a powerful diuretic action, more especially when employed as the salicylate of theobromine, though Germain Sée denies the possibility of the solubility of theobromine in salicylic acid. Kola, too, possesses undoubted diuretic powers, which it owes to the caffeine and theobromine it contains. To these diuretics we may now add a group of substances which belong to dietetics—the lactoses and glucoses (*vide* § 26). Use can be made of either of these sugars, and if not tolerated by the stomach they can be injected by the rectum. Quite as important as diuretics in cases of renal insufficiency are purgatives. Every patient so affected should have two or three stools daily. To obtain this result any laxative, Professor Beaumetz thinks, may be used, so long as the laxative selected is adapted to the intestinal tolerance of the patient. Since the skin may be considered an external kidney, it is necessary to promote its functions to aid in the process of elimination of toxic principles from the economy. But it often happens, in spite of all efforts to effect elimination by diuretics, purgatives, or sudorifics, we are unable to get rid of the toxins accumulated in the blood, and symptoms of poisoning by them become more and more pronounced. We must then have recourse to inhalation of oxygen, which augments the vitality of the red corpuscles and causes the transformation of these toxic principles. Blood-lettings, either local or general, are also of service, though they must be regulated by the strength of the patient, and are useful since they actually withdraw a certain quantity of poison accumulated in the blood. When the patient is very feeble recourse may be had to transfusion. In order to prevent the formation and accumulation of toxins, attention must be paid to hygienic measures. The first hygienic indication is to control as far as possible the integrations and disintegrations connected with the exercise of the organic functions. Patients, therefore, suffering from renal insufficiency should avoid fatigue, and all overwork, physical and mental. The second indication consists in regulating the digestive functions, with a view to arresting the vicious fermentations that occur there. For this we should employ intestinal antiseptics, such as capsules of salicylate of bismuth, with or without the employment of naphthol or salol. Lastly, with a view to reduce to a minimum the toxins contained in aliments, the patient should be subjected to a vegetarian regimen, that is to say, live exclusively on milk, eggs, starches, green vegetables, and fruits. If meat should be ordered it must be well cooked, since cooking destroys the elements of putrefaction.

Game, mollusks, crustaceans, fish, old cheeses, must be absolutely forbidden, because these substances contain ptomaines. Professor Beaumetz especially insists on those ptomaines developed by putrefying fish as most rapidly produced and most toxic. The patient should never drink spirits nor pure wine, but may take milk, beer, or extract of malt. The above regimen applies only to cases of little intensity; when the symptoms of uræmic poisoning are menacing, then there is but one alimentary substance applicable—milk.

3. Albuminuria of opium eaters.

Dr. Houchard in a recent communication (May 9, 1890) to the Soc. Méd. des Hôpitaux gave his experience of ten cases of persistent albuminuria occurring in persons who habitually used morphine in large quantities, and which eventually terminated in uræmia. Dr. Houchard came to the conclusion that the albuminuria in each case was developed by the abuse of morphine. He explains the pathogenesis by the following suggestions:— (1) That it may be caused by its specific action on the medullary centres; (2) by its being consecutive to paresis of the renal vaso motor supply; (3) that anomalies of pressure are capable of producing renal disease. With regard to the last cause Dr. Houchard asserts that morphine thoroughly and rapidly decreases arterial tension. Dr. Haig (*Lancet*, June 7, 1890) is unable to agree with Dr. Houchard that the albuminuria caused by morphine is due to the diminution of arterial tension, for this cannot apply to granular kidney, in which tension is high, and which may be so before there is any albuminuria; and, secondly, the low tension of the morphine is by no means continuous, but alternates between doses with extreme high tension, and it is to this high tension that Dr. Haig would attribute the albuminuria. There are several facts which Dr. Haig thinks might be adduced against Dr. Houchard's suggestion that albuminuria is due to low tension, or that low tension pulse will cause passive congestion of organs.

[It will probably be found on a more careful examination that both authors are correct as to their statements as regards the tension of the pulse. In certain cases of diabetics who are taking large doses of opium, I have found that shortly after and for a period that varies greatly in individual cases there is increased tension of the pulse, followed by a period of decreasing tension. The question to be determined is whether the albuminuria is caused by high or low tension].

4. Treatment of puerperal albuminuria.

Dr. Hurd (*Therap. Gazette*, Nov. 15, 1889) discusses the treat-

ment of puerperal albuminuria and eclampsia. Many women have the former, but escape convulsions; in others there are early warnings of the onset of eclamptic seizures. Among these are headache, tinnitus aurium, drowsiness, dimness or actual loss of vision of both eyes, nausea, vomiting, dyspnœa. The urine becomes scanty, whilst the percentage of urea decreases to one-fourth or one-half, and becomes loaded with albumen. These symptoms should be met by a milk diet, diluted or not, as the case requires, with Vichy water, fruit, but a minimum of meat. Perfect rest should be insisted on. Full doses of chloride of iron (Purdy, of Chicago, has advised the carbonate of iron in these cases as more efficacious, *vide* "Year Book," 1885, p. 61) and diuretics, such as cream of tartar and acetate of potassium, should be employed. A full dose of Glauber salts should be given every morning to promote elimination by the bowels. Jaborandi may be given by the mouth, or pilocarpine ($\frac{1}{8}$ grain) injected hypodermically. Should these efforts fail, and the patient become worse, and a convulsive attack threaten, premature labour should be induced. If already in labour, it should be concluded under chloroform, and expedited by artificial means. Ten grains of calomel should be administered; and if the pulse tension is high, venesection (16 ounces) may be resorted to. The patient should be completely anæsthetised so long as convulsions threaten. As an adjuvant to the chloroform a full dose of chloral may be given by the mouth or rectum, and in obstinate cases hypodermic injection of morphine.

5. Transient albuminuria.

Dr. Goodhart (*Guy's Hospital Gazette*, March 29, 1890), speaking of albuminuria, without organic disease, has met with it in 39 cases, of which 26 were males and 13 females. He divides this form of albuminuria into five groups. (1) *Oxaluric*, in which the albumen may be derived from the mucous surface of the urinary passages being scratched by the sharp edges and corners of the crystals. (2) *Lithæmic*, which may occur at all ages, the result, especially in children, of too heavy feeding on solids without sufficient liquid being taken with the food. (3) *Hæmoglobinuric*. In this condition, instead of the blood-coloured urine of hæmoglobinuria, albumen is passed. It is sometimes caused by a cold bath. (This form has been described as paroxysmal albuminuria by other writers). (4) *Extra-renal albuminuria*, or albuminuria derived from the genito-urinary passages—as in women by leucorrhœa, and in men by gleet or other venereal discharge; but in many it is only the natural seminal fluid or prostatic secretion. The albuminuria in these cases is only present in the early

morning. (5) *Neurotic albuminuria*. Seventeen of the 39 cases belonged to this group. Dr. Goodhart considers the theory of causation to be the exhaustion of the higher brain centres from work and worry; the lower centres, being relieved, so to speak, of the inhibitory influence of the higher centres, fall into a turbulent condition, and hence cause an intermittent discharge of albumen—a condition perhaps analogous to the flushing of neurotic women.


6. Proteids occurring in the urine in various forms of albuminuria.

Dr. Noel Paton (*Brit. Med. Journal*, July 26, 1890) and Messrs. Douglas & Mackenzie contribute an extensive analysis showing the different proportions in which the more important proteids occur in the urine in the different forms of albuminuria, and come to the following conclusions:—(a) In all cases of albuminuria both the chief proteids, serum and globulin albumin, are present in the urine. (b) The proportion of these proteids varies considerably; the quotient of the amount of serum albumen divided by the amount of serum globulin being sometimes only 6, sometimes as high as 39. (c) In acute nephritis, when blood is absent, serum albumen is proportionately high; when hæmoglobin is present, the serum globulin is in excess. (d) As the nephritis becomes chronic the quotient of serum albumen falls; this diminution depends more upon the condition of the patient, and is related to a similar change in the blood plasma, than on the state of the kidney. (e) The high proportion of serum globulin does not distinguish amyloid disease from ordinary forms of chronic nephritis, as has been previously maintained. (f) The statement that functional albuminuria is characterised by the high proportions of serum globulin is not correct. (g) In every instance the proportion of the proteids to each other varies greatly in the course of the day. In making comparisons in different cases it is therefore necessary to examine specimens of the mixed urine of the twenty-four hours, and to take into account the nature of the diet. (h) Serum globulin is at the highest during the night, falls greatly after breakfast, when it usually reaches its lowest point, rises again towards evening. The connection between these variations and the taking of food has not been definitely settled. Milk diet has the effect, however, of increasing the proportion of serum albumen. The amount of proteids passed appears to have a tolerable relation to the amount of proteids ingested, and, excluding a milk diet, the increase of proteids in the urine on a diet containing an excess of these bodies, is due to an increase of serum albumen. (i) The variation in the proportion of the two proteids is often so great that it is difficult to

believe that it is always due to a similar change in the blood plasma. In some experiments the authors have made it would seem that a high pressure favours the transudation of serum albumen, whilst a low pressure increases the proportion of the globulin transuded.

7. Mucinuria.

Dr. E. Kirk (*Lancet*, May 3, 1890) observes that a most interesting question is as to the origin of the urinary mucin and its clinical significance in increased quantity in the urine. Hitherto the prevalent idea has been that it is derived chiefly, if not solely, from the mucous membrane of the bladder and the rest of the urinary tract. But it can hardly be supposed that the urine in jaundice or some other pathological states can be so stimulating to the urinary mucous membrane as to cause that considerable increase of mucin which is found in the fluid in these conditions. Above all, if there be a considerable increase of mucin in the urine in many cases of albuminuria, we are, with our present knowledge, quite at a loss to account for it. It appears to Dr. Kirk, therefore, impossible to explain its variations in the urine on any other supposition than that it is largely derived from the metabolic processes of the epithelium of the renal tubules themselves. He quotes Dr. Ralfe (*Lancet*, Nov. 17, 1888), who seems to have supplied the very link which was wanting in our knowledge, as to the causation of various forms of functional albuminuria, by the suggestion that they are mostly due to derangements of the metabolic activity of the renal cells—that function by which they separate albuminous constituents from the blood, and either appropriate and convert them for their own nutrition, or decompose them into urea and other products. When this function is inadequately performed either from excess of work thrown on healthy epithelium, or from any cause tending to impair their functional activity, albuminuria may result. And if *mucin* be a product of this metabolism, we can at once see that the same circumstances which produce albuminuria would also lead to increased metabolism. If this view should prove well founded, it would give a different complexion to many problems involved in albuminuria. And here it may be of interest to recall the fact, first pointed out by Dr. Finlayson in 1874, that tube casts have been found in jaundiced urine in the absence of albumen. When we consider that such urines are invariably rich in mucin, however, the occurrence of tube casts in them may be of significance, and lend support to the supposition already advanced, and it seems almost certain that increased *mucinuria* is not only a frequent concomitant of albuminuria, but may



be the precursor of it, and therefore a danger signal. Hence heat and picric or acetic acid even when it gives a result which may be only mucinous, really reveals a morbid condition, for the same result is not obtained in strictly normal urine. Defective metabolism of the renal epithelium may in its minor degrees show itself only by increased mucinuria, and in a more advanced stage by albuminuria. There is a certain harmony between this view and that of Senator and Posner, for this first stage would only be an increase of a physiological phenomenon.

8. Acute hæmorrhagic nephritis.

Dr. Geo. F. Crooke and Dr. Ed. W. Nason (*Lancet*, vol. ii., p. 1216, 1889) give an account of three cases of acute hæmorrhagic nephritis occurring during the course of, and directly caused by suppurative meningitis. They attribute the nephritis to two independent factors: (a) septic absorption into the blood and elimination by the kidneys of some unorganised poison; and (b) vaso motor disturbance. Dr. Ralfe (*Lancet*, vol. ii., p. 1307, 1890) also relates the occurrence of three cases of acute hæmorrhagic nephritis in patients with recent acute myelitis; in these cases there was considerable diuresis as well as hæmorrhage. With respect to the causation, Dr. Ralfe is inclined to believe with Dr. Crooke and Dr. Nason, that it is chiefly connected with disturbance of the vaso motor system. As an additional support to this view the remarkable increase in diuresis that occurred in all three cases may be taken into consideration.

9. Hæmaturia.

Mr. G. Stevens Pope (*Lancet*, vol. ii., p. 1329, 1889) relates the case of a patient, a man æt. 24, who had suffered from persistent hæmaturia for two years, who, treated with warm baths, lead and opium, matico, compound tincture of cinchona, ergot, iron and arsenic, and cascara sagrada, experienced no benefit; he was then ordered a vapour bath twice a week, the bowels being kept regular at the same time, and in eighteen days the hæmorrhage had ceased, and two months afterwards he was still well.

[The hæmaturia in this case, especially at its onset with cramp, pain in the soles of the feet, twitching of the muscles, etc., was probably due to retained uric acid crystals or small calculi, which finally made their way down the urinary passages, and escaped unobserved. In a case of hæmaturia occurring in a gouty patient under my care, without any renal symptoms, the discharge of blood ceased shortly after the use of hot-water baths and Turkish baths, probably from relieving some degree of spasm in the ureter and allowing a small concretion to pass.]

10. Pneumaturia.

Professor Muller of Bonn (*Berlin. klin. Wochenschr.*, No. 41, 1889) gives an account of a case of this strange and somewhat rare disorder. The amount of gas held in solution by the urine was very considerable, and evidently had been derived from the blood, by a nervous influence, which in a similar manner causes sudden flatulent distension of the intestines in neurotic and hysterical females. In a case under my care in the London Hospital the disengagement of gas was so great that effervescence occurred when the urine was passed from one vessel to another, and the upper part of the bulb of an urinometer was quite exposed, when placed in the urine, being lifted up by the action of the escaping gas (N and CO₂). By degrees the sp. gr. fell to 50°, then to 35° to 20°, and ultimately rested at 1.016°.

11. Antipyrin in albuminuria and diabetes.

Mr. H. Feeny (*The Lancet*, vol. ii., p. 431, 1889) administered antipyrin, at first three grains twice a day, afterwards three grains daily, to relieve the severe headache in a case of post-diphtheritic nephritis with general dropsy; improvement was marked in three weeks, and after a still greater interval (five months) she was convalescent. Mr. Feeny also administered antipyrin, in a similarly small dose, in a case of diabetes, with the result of reducing the amount of sugar excreted to one-fourth.

[Antipyrin has been given with advantage both in albuminuria and diabetes (*vide* "Year-Book," 1890, p. 99, § 12), but not usually in so small a dose, 8 to 10 being generally the amount administered. Mr. Feeny has, perhaps, been afraid to give large doses, lest cardiac irregularity might be caused by the drug, as happened in a case he previously recorded. Still, we think 8 grains would be well borne in the majority of cases, and could be lessened afterwards if necessary.]

12. Diabetes.

The chief interest this year has centred, first in Dr. R. Saundby's valuable digest of the varied lesions met with in diabetes, which formed the subject of the Bradshawe Lecture at the College of Physicians, in which he particularised the pancreatic lesions, and brought into prominence the view originally advanced by Lancereaux (*vide* § 17), and supported by the experiments of Mering and Minkowski (*vide* § 18), that destructive disease of the pancreas is not an infrequent cause of a diabetes characterised by its violent course, accompanied with rapid emaciation; and, secondly in the discussion opened by Dr. Pavy at the Berlin Congress on the important question of the treatment of diabetes. The papers supplied by the different speakers on that

occasion have not yet been printed in full, and will naturally form a subject to be treated more at length in our next "Year-Book." Still, a subject of such importance can hardly be allowed to stand over until then; we propose, therefore, to give now a summary of the views of the chief speakers, reserving the more detailed account for a future occasion. According to the account given in the *Lancet*, Sept. 15, 1890—

Dr. Pavy opened the discussion by repeating his well-known view that diabetes is caused by the abnormal entrance into the general circulation of sugar which ought to have been stored up in the economy rather than to a failure of the organism to destroy the sugar that had already entered. The object of our treatment is therefore to be directed against two phenomena: the waste of material that should be utilised in the economy, and the presence of sugar in the blood. The restricting all carbohydrate food is a step more or less complete towards preventing the passage of sugar into the blood; but this is not sufficient, since it is not possible by these means to restore the natural power of assimilation of these bodies, and to effect this, or, perhaps, to do so for a time, we must have recourse to therapeutic measures, of which the derivatives of opium, morphine, and codeine, are the most successful. Professor Seegen distinguishes two forms of diabetes—the one mild, in which the sugar is derived directly from the carbohydrate food ingested; and a severe form in which, though no such food is taken, sugar is formed in the organism independently of it. Professor Seegen places dietetic treatment in the front rank, but does not so rigidly enforce it as some, since he finds an absolute meat diet is not well tolerated, and cannot be enforced. There is no reason to give a larger allowance of meat than is usual with ordinary individuals, and he admits a small quantity of bread (40 to 50 grms.), green vegetables, and acid fruits in moderation, to the dietary. He is of opinion, as indeed are many who have examined most of them, that the gluten flours sold as absolutely free from starch, are far from being so, and advises that when used at all they should be in restricted quantity. The mineral waters of Carlsbad, Vichy, and Neuenahr, seem to enable the patient to bear an addition of carbohydrate food to his dietary better than without them. But Professor Seegen very wisely sets his face against encouraging patients to visit far distant health resorts, as the fatigue of travel is most injurious to them. Professor Cantani observed that in *alimentary* diabetes, the restriction of the diet to fats and proteids was most useful, but had less effect in *neurogenic* diabetes. Opium he regarded as harmful. Dr. Dujardin-Beaumetz considered the essential part of

the treatment to consist in the regulation of the diet, and the replacement of carbo-hydrates by fatty food. He pointed out that gluten bread often contains 20 to 30 per cent. of starch, whilst potatoes have only 8·5, and would therefore prefer to permit the use of the latter instead of ordering the former. He forbids milk and alcohol, but allows tea, coffee, maté, and kola. For drugs he recommends lithia, arsenic, quinine, bromides, and antipyrin. Saccharin he considers as a gain to the diabetic. As contributory hygienic measures he advises gymnastics, hydro-therapeutics, and the use of the alkaline mineral waters.

[Although the chief reliance was placed on dietetic restrictions by all who took part in the discussion, there was considerable difference of opinion as to the strictness with which it should be observed—between those who, like Seegen, would allow 40 to 50 grms. of bread, and acid fruits, or, like Dr. Beaumetz, a small modicum of potatoes, and those who rigorously exclude every grain of carbo-hydrates. This difference of opinion is no doubt influenced by the class of case which most frequently comes under the speaker's observation. On the Continent there can be little doubt that the *alimentary* form is more common than with us, whilst there is every reason to believe that many cases they call diabetes would be classified as glycosuria here. The German and French authorities are more liberal in allowing carbo-hydrates and fruit than we are. So far as a rule can be laid down for a disease in which the peculiarities of each case require to be considered, absolutely restricted diet should be maintained in all acute cases till the sugar disappears from the urine, and mixed diet should not be permitted till the urine has remained free for some time after. In more chronic cases, when the sugar returns again and again on the resumption of a mixed diet, and the maintenance of a diet absolutely restricted to proteids and fats is difficult to carry out, either owing to want of control on the part of the patient, or troubles of assimilation, the question arises to what extent and in what manner relaxation may be permitted. We may, as Seegen and Beaumetz, allow a small measured quantity of bread or of potatoes with each meal, continuing this course as long as the disease lasts; or we may follow a plan, which I have found useful, of intermitting periods of restriction with periods of relaxation. This treatment is especially useful in mild cases that run a chronic course, and when the health of the patient is likely to be affected by the too exclusive use of animal food. A very slight resumption, permitted for a short period only, a week or a fortnight, often greatly assists assimilation which has been impaired, and enables the patient on the whole to bear a restricted diet better than he would without

these breaks. Usually during the periods of relaxation I prescribe a preparation of opium, and omit it when the patient returns to restricted diet. With regard to the amount of animal food required by diabetic patients on a restricted diet, I agree with Professor Seegen that it is not necessary to increase it to the extent it is often thought requisite. I have often found a definite improvement following a diminution of the meat taken on a restricted diet, back to what the patient ordinarily consumed before his illness commenced. Milk, again, is an article of diet about which opinions vary, and here the Continental physicians are more lax than we are. Milk should be rigorously excluded from the dietary in all cases of confirmed diabetes, and should only be permitted in cases of glycosuria accompanied with obesity. Very little was said in the discussion with regard to the therapeutic treatment of the disease. Opium and its preparations certainly are the most important, but opinions vary as to their use—Dr. Pavy relying on codeine and morphine to restore the assimilative power of the hepatic cells, whilst Cantani regards opium as harmful. The question of the use of opium in diabetes certainly requires further investigation. There can be no doubt of its influence over the disease, but we ought to be more certain as to the period of the disease when its employment is called for, the extent to which it may be pushed in severe cases, and whether we are justified in its long continuance in chronic cases. Certainly in England we rely on the drug far more than they do in France or Germany, we use it earlier, and push it more vigorously. As regards the other drugs, lithia, arsenic, quinine, antipyrin, and bromide of potassium, were mentioned. Lithia and arsenic, as also salicylate of soda, have been found useful in the constitutional and arthritic forms of diabetes; whilst antipyrin, arsenic, bromide, and quinine, are more specially indicated in the accidental or neurotic type of the disease.]

13. Sulphonal in diabetes.

Dr. Casarelli (*Rivista Gen. di Clin.*, Dec. 25, 1890) speaks favourably of the use of sulphonal in doses of one or two grms. as an hypnotic in the twenty-four hours. It also diminishes the proportion of sugar and quantity of urine eliminated. These doses were generally well borne, though sometimes they caused somnolence and vertigo, when they should be stopped or diminished. Sulphonal is equally well borne with a mixed as well as an absolute diet.

[In a patient at present under my observation, who is extremely intolerant of opium in any form, sulphonal in doses of 20 grains taken at bed-time gives a fair night's rest, whilst

certainly she has improved in many respects under its use, the amount of sugar and the excretion of urine being less than before she began taking it, which was in the autumn of 1888, when Dr. Oliver, of Harrogate, first ordered it, on account of her insomnia and inability to take opium. Sulphonal may, therefore, prove on a larger experience a useful substitute for opium, when that drug is not well tolerated or we wish to defer its use.]

14. Milk diet in diabetes.

Dr. Mascarel (*Bull. Gén. de Thérap.*, August, 1890) concludes that milk only should be ordered in cases of diabetes when the urine is found to contain albumen as well as sugar. This conclusion seems based on two cases of severe diabetes; one who took 4 to 5 litres of milk in twenty-four hours, and the other who took from 4 to 6 litres. In both instances the symptoms of the disease were aggravated.

[It need hardly be remarked that the ingestion of large quantities of lactose, as implied by these quantities of milk, in confirmed diabetes could hardly fail to be followed by an aggravation of the symptoms.]

15. Sugar in the sugar excretion of diabetes.

Dr. Troye (*Archiv für exper. Path. u. Pharm.*, 1890, Bd. 26, H. 5, 6) gives the results of experiments to prove the effect of a constantly increased supply of sugar upon the sugar excretions of diabetes. The question was whether the increase of sugar in the food up to a certain amount would be followed by an excretion beyond that amount. The answer was in the negative in the four cases submitted to experiment. It was also found that the assimilative power of the body was reduced by a continued administration of dextrose, though not to the degree that has been previously supposed, and, moreover, this lowering of the assimilative power is not incompatible with an improvement of the bodily condition.

16. Condition of gastric juice in diabetes.

Professor Rosenstein (*Berlin. klin. Wochenschr.*, No. 13, 1890) has made observations into the relation of the gastric juice and the stomach in ten cases of diabetes. Of these the gastric juice was found normal in four, whilst an alteration was found in the other six cases. In these latter cases free hydrochloric acid was found absent for longer or shorter periods, and this failure of secretion is to be attributed to a neurosis of the stomach. In a certain proportion of the cases there was atrophy of the mucous membrane of the stomach and attendant gastritis. Professor Rosenstein found no direct relation between the secretion neurosis of

the stomach and the other neuroses of diabetes, in so far as they could be measured by the amount of sugar, acetone, etc.

17. Forms of diabetes.

M. Lanceraux (*Bull. Gén. de Thérap.*, June 8, 1890) describes three forms of diabetes. (1) That described by Claude Bernard, following an injury or a lesion of the nervous system. The symptoms are severe, but a cure is possible. (2) Diabetes with emaciation arising manifestly from destruction of the pancreas, coming on suddenly, with polyuria, ravenous appetite, with excessive elimination of sugar, and terminating shortly in death. (3) Diabetes of stout persons, constitutional or arthritic, which present relations more or less intimate with chronic rheumatism. This latter form of diabetes has no relation with the preceding forms of diabetes, but must be classed in the grand family group of herpetism. This form develops a tendency to obesity in young persons, with polyuria little marked, and with a moderate degree of glycosuria, varying much and intermittent. The disorder runs a long course, twenty, even forty years; it is rather a condition of the organism than a disease. When death occurs it is generally from a complication.

18. Pancreatic diabetes.

Dr. Saundby (*Brit. Med. Journ.*, August 23, 1890), in the Bradshawe Lecture, observes that diabetes far from having no morbid anatomy has one of a very complicated kind, and one that cannot be without bearing on its pathology. The most important lesion, in his opinion, is the wasting of the pancreas, but it is not till this organ has been carefully examined in a larger series of cases than has been yet collected that we shall be in a position to speak definitely as to its pathological position and value. Of great importance, too, are the changes of the abdominal sympathetic ganglia, though they are too inconstant to form the basis of a satisfactory theory. The liver dangers are probably altogether secondary to a functional hyperæmia, induced under nervous influence. The other changes in kidneys, lungs, heart, and brains, are merely the results of defective nutrition and long standing hyperglycæmia. But the morbid anatomy is not yet completed, as is shown by our imperfect knowledge of the state of the pancreas. Unfortunately, diabetes is a rare disease even in our great hospitals, hence it is a work of many years to accumulate a series of carefully-observed cases, so that with our custom of holding pathological appointments only for a few years few physicians get an opportunity of doing so.

Drs. Von Mering and O. Minkowski (*extract from Birm. Med. Review*, March, 1890) report a number of experiments from their

laboratory at Strassburg, showing that extirpation of the pancreas results in true diabetes mellitus with the usual symptoms. A dog whose pancreas had been removed, secreted, after forty-eight hours' fasting, from five to six per cent. of sugar. Another dog, similarly treated, weighing 15 lbs., secreted under an exclusive meat diet two pints of urine daily with six to eight per cent. of sugar. Introduction of grape-sugar into the food resulted in an increase of this by six per cent., by far the greatest part of the grape-sugar being excreted without having undergone any modification. The urine also contained appreciable quantities of acetone. The percentage of sugar in the blood was also much increased, being in one case 0.30, in another 0.46. Glycogen at the same time disappeared altogether. In a dog which has been rendered diabetic for four weeks, and which was killed while being fed on full flesh diet, neither liver nor muscle contained glycogen. Transfusion from a diabetic dog caused no secretion of sugar in a healthy dog.

M. Léprie (*Lyon Méd.*, p. 619, 1889; p. 83, 1890) explains the fact of diabetes occurring in cases in which atrophy of the pancreas has been found after death, by the hypothesis that a sugar ferment is formed in that organ, and, carried to the liver by the portal vein, to assist in the transformation of glucose. To demonstrate this, two dogs of equal size were both kept fasting several hours. One had the pancreas completely removed some time before, and being kept unfed for sixty hours was bled to death. The other was not operated on, but was kept fasting for the same period, and then also killed by bleeding. The blood taken from the dog from which the pancreas had been removed was then found to contain three times the percentage of sugar more than the dog whose pancreas was left intact. Moreover, after the blood had been left under the same conditions for fifteen hours the blood of the dog deprived of its pancreas had lost only 6 per cent. of its sugar, whilst the other dog had lost 33 per cent. This much greater loss would seem conclusive of the continued action of the ferment absorbed from the pancreas in transforming the glucose in the blood.

19. Transient diabetes (glycosuria) of neurotic origin.

Dr. Goodhart (*Brit. Med. Journ.*, vol. i., 1889) remarks that whilst so much attention is paid to transient forms of albuminuria so little is thought of the glycosuria, which is not diabetes. This glycosuria he had thought was generally attributed to the gouty diathesis, but several of his cases had not been, as far as could be ascertained, in the least gouty, but on the contrary, all occurred

either in markedly neurotic people, or were associated with work or worry. In these cases the early conditions are very successfully treated by good nerve tonics—such as strychnine, arsenic, quinine, and hydrobromic acid—by careful dieting, and relief from worry; by rest from brain work, and change of scene. As opium is a remedy of unquestionable value in diabetes, so it is for paroxysmal glycosuria. Small doses of this drug have a steadying power over the nervous system or circulation, and for the same purpose antipyrin might also be employed with advantage in these cases.

[Dr. Goodhart deserves thanks for drawing attention to a class of cases which too often escape observation. Although these cases when early treatment has been successfully carried out speedily recover, they should not be lost sight of, for they are the very class to furnish subjects for the permanent form of the disease.]

20. Cardio-vascular changes in diabetes.

Dr. J. Mayer (*Berliner klin. Wochens.*, No. 20, 1890) observes that little attention has been paid to the condition of the heart and circulation in diabetes. Pavy is entirely silent on that point, whilst some other authors mention lowered cardiac activity. Dr. Mayer, however, has found the heart enlarged in 82 instances out of 380 diabetics (21·6 per cent.). In the post-mortem records of the Berlin Pathological Institute heart-disease was found in 13 per cent. The enlargement of the heart was no doubt the consequence of the overwork of the kidneys, which are not equal to the strain of removing the chemical irritants from the blood. This effect on the heart and vascular circulation of the imperfectly eliminated abnormal products of the blood in diabetes is not a fresh discovery, for in the "Year-Book" 1885, p. 63, in some remarks on milk diet in the treatment of certain forms of diabetes, I observed that one of the good effects it might produce was the reduction of the high arterial tension sometimes observed in these cases, and at the same time I drew attention to a paper by Dr. C. W. Purdy (*Journal Amer. Med. Assoc.*, Sept. 12, 1885), in which he published some pulse tracings taken from diabetic patients which in their character resembled those of chronic renal disease.

21. Glycuronic acid—resemblance to diabetes.

Dr. Ashdown (*Brit. Med. Journ.*, vol. i., p. 169, 1890) records an instance in which a substance, which has been identified by Schmiedeberg and Mayer as glycuronic acid, was found in the urine of an apparently healthy young man in considerable quantities. Glycuronic acid cannot be distinguished clinically in the urine from glucose except by the fermentation test. It has

been found in the urine after the administration of chloroform chloral, morphine, and benzol compounds.

22. Diabetes after influenza.

Dr. E. Saundby (*Brit. Med. Journ.*, May 10, 1890) records two cases of diabetes which appeared to have owed their origin to the morbid conditions brought about by the epidemic of influenza.

23. Diabetes—is it communicable?

Dr. Schmitz (*Berliner klin. Wochens.*, 20, 1890).—In the last "Year-Book," p. 108, we recorded Dr. Debove's observation that out of fifty cases of diabetes he had attended, in five both husband and wife were affected. Dr. Schmitz, in the contribution above named, now gives statistics of 2,320 diabetics in twenty-six of whom the disease affected both man and wife. The percentage is just over 1 per cent. The patients, mostly married women, became suddenly diabetic after having nursed, slept with, eaten and drank from the same plates and cups as their husbands. In none of Dr. Schmitz's cases was there an hereditary tendency, nor consanguinity, none were arthritic, none were great eaters of sugar. Do these cases suggest coincidence or contagion, or does not the explanation rest in the fact that the wife participates in the same worries and troubles and of the same diet as her husband?

24. New copper test for sugar.

Dr. C. W. Purdy (*New York Med. Journal*, March 8, 1890), with a view to render the copper solution used in testing saccharine urine more stable, suggests the employment of pure mannite instead of sodic or potassic tartrate. His formula is as follows:—Copper sulphate 4.15 grms., pure mannite 10 grms., potassium hydrate 20.4 grms., strong solution of ammonia (sp. gr. 0.88) 300 ccm., pure glycerine 50 ccm., distilled water added to fill 1 litre. In preparing this solution, the copper salt should be dissolved separately in one portion of the water warmed, and the glycerine and mannite added; in another portion the potassium hydrate should be dissolved. When the first solution is cold, then the other should be added, and finally the ammonia, and the whole filled up to 1 litre; 25 ccm. of this solution is reduced by $\frac{1}{2}$ grain of grape-sugar, and $\frac{1}{20}$ grain can be determined by it. The process of estimation is as follows:—25 ccm. of the solution are introduced into a small glass flask (4 oz.), to which 50 ccm. of distilled water are added, and the whole heated to ebullition over a spirit lamp. Then from a pipette graduated to hold 30 minims, the saccharine urine is dropped into the flask drop by drop, till the blue colour of the liquid in the flask is completely discharged.

The number of drops required to effect this represents exactly $\frac{1}{2}$ grain of sugar, and from this a calculation can be made as to the quantity of sugar in any given amount of urine.

25. Diabetic coma treated by intravenous injection of saline fluid.

Dr. Dickinson (*Brit. Med. Journ.*, March 8, 1890), at a meeting of the Clinical Society, brought forward the case of a young woman, aged 25, suffering from diabetes of a severe form, and in whom coma had suddenly supervened. It was determined to resort to intravenous injection, and a solution like that used for cholera patients was employed, consisting of chloride of sodium, chloride of potassium, sulphate of soda, phosphate of soda, and bicarbonate of soda. This was slowly injected at first into the veins, till 106 ounces had been injected in the course of an hour. About ten minutes after the conclusion of the operations the patient recovered consciousness, which soon became so complete that she was able to take food and converse with her friends. The next day, however, the coma returned as severe as before, and the injection was repeated this time into one of the veins of the legs. The return to consciousness was more prolonged than on the first occasion, perhaps because a small quantity of chloroform had been used in opening the vein in the leg. Nevertheless the aspect of the patient improved, the features became less pinched, the complexion less livid, and the pulse gained in volume. The injection was proceeded with till 350 ounces or $17\frac{1}{2}$ pints had passed in. After the conclusion of the injection the patient still remained unconscious for three-quarters of an hour, and then recovered consciousness for nine hours, after which she became drowsy, and after thirty hours lapsed into coma, which became fatal. After the operation the turgescence of the veins gradually ceased. Urine of low specific gravity (1012), which contained 1.8 per cent. of sugar, was passed freely. It gave no acetone reaction, though before it had been strongly marked. The bowels were loose, but not extravagantly; the skin which before had been dry, was moist, but not sweating. The acetone smell in the breath was still present, but not so marked as before. Within the space of thirty-six hours, 22 imperial pints of saline solution had been introduced by the veins into the body. The results of the post-mortem examination might be summed up as venous engorgement and fluidity of blood. The hopelessness of diabetic coma was held to justify treatment which was exceptional. The first injection, 106 ounces, was entirely beneficial; with regard to the second, of 350 ounces, the postponement of the expected benefit led to its being carried

beyond the region of therapeutics into that of pathology, not only was consciousness restored, but venous engorgement produced. The delay to the return to consciousness suggested that the benefit was due to elimination rather than hydration. As a practical conclusion, Dr. Dickinson suggested that free water-drinking should be enforced before diabetic coma was established in cases where it was anticipated.

[Dr. Dickinson has succeeded in proving that a very large quantity (22 pints) of a dilute saline fluid can be injected into the body, and that, up to a certain point, with no dangerous results. It will certainly encourage others to use larger quantities of fluid for intravenous injection than has hitherto been the practice. From the experience gained from this case, one would feel disposed, if the patient returned to consciousness after the first 100 or 150 ounces had been injected, not to wait till she became drowsy or comatose before again resorting to injection, but to repeat it in quantities not exceeding 100 ounces every four, six, or eight hours, as the condition of the patient seemed to require. In this way a relapse might be postponed for some time. Regarding the hopelessness of the issue, it is not a procedure one would urge on the friends, but there are many cases in which a temporary rally would be earnestly desired both by the friends and the patient, for the purpose of signing a will, or bidding farewell. In this respect, the time gained by Dr. Dickinson's first injection would prove invaluable. In the report of Dr. Dickinson's paper no mention was made of the strength of the solution, though, no doubt, he stated it. The usual strength in cases previously reported has varied from 0.5 to 1 per cent.]

26. Sugars as diuretics.

Dr. Mlle. Meilach (*Bull. Gén. de Thérapie*, Jan. 15, 1890). In the "Year-Book" for 1890, p. 103, attention was drawn to the researches of M. Germain Sée with regard to the diuretic action of milk, which he showed was due to the lactose contained in it; and M. Dujardin-Beaumetz, who employed glucose instead of lactose, obtained analogous results. Mlle. Meilach in the present contribution reviews the previous observations and researches on this subject, and concludes that both lactose and glucose act as diuretic agents by their effect on the kidney substance, and, unlike caffeine, act on the nervous system, nor when injected into the veins of animal raise the blood pressure, nor do they appear in the urine. Their effect as diuretics is most marked in diseases of cardiac, or of cardio-vascular origin, and when the urine is quite free from albumen; but their action is nevertheless considerable even when albumen is present. Lactose

may be administered as a *tisane* in a proportion of 100 grms. to 2 litres; glucose in a syrup containing 75 per cent.; 150 grms. of this syrup will always bring about an abundant diuresis. Mlle. Meilach states that the "grape cure" owes its efficacy to the large quantity of glucose in the grapes, just as milk contains a large quantity of lactose, and suggests that the "grape cure" might in certain cases be advantageously substituted for "milk diet." *Vide* also paper by Dr. L. G. Rabinovitch (*New York Med. Journ.*, July 5, 1890), on the action of sugars in the organism.

27. Theobromine as a diuretic.

Dr. Gram, Copenhagen (*Therapeutische Monatshefte*, Part 1, 1890), gives the results of his clinical experience of the diuretic action of theobromine. Pure theobromine is with difficulty absorbed, but after its absorption it acts as a powerful diuretic apparently by direct action on the kidneys, as there is no accompanying effect on the heart. Theobromine-sodium salicylate is, however, readily absorbed, and in doses of 90 grains daily (15 grains for a single dose), is a very efficient diuretic. It is non-poisonous, slight giddiness having only been observed on one occasion in a very debilitated patient after its use. The cases in which Gram employed the drug were those in which the ordinary diuretic medicines had been previously employed without benefit; in all except those in which it was not absorbed, or there was extensive degeneration of the kidneys, the diuretic action of theobromine was fully proved.

28. Treatment of renal dropsy.

Herr Fürbringer (*Medical Press*, p. 430, 1890). The treatment of renal as well as cardiac dropsy was recently brought forward for discussion at the Society of Medicine at Berlin. He stated that there was no decided agreement which of the four methods—by the skin, by the kidneys, by the bowels, or by operative interference—should first be tried for the relief of dropsical accumulations. In renal dropsy Herr Fürbringer first uses external diaphoresis, and possibly laxatives, only having recourse to surgical measures in later stages. To promote diaphoresis, he advises a bath 100° Fahr. for quarter to half an hour; on his removal the patient is wrapped in a blanket. The urine does not become scanty, indeed, copious diuresis frequently ensues. If baths are impracticable hot wrappings may be used instead. He has abandoned pilocarpine, from the dangerous symptoms that so often follow its use. Digitalis after all remains the prime therapeutic diuretic, even in renal dropsy, and Herr Fürbringer is not aware of a single contra-indication to its use. When either the infusion, powder, or pill fails, excellent results may be obtained with acetum

digitalis. Strophanthus, caffeine, theobromine, calomel, and saline diuretics, deserve certain praise; but adonis, convallamarin, blatta, and spartein, are useless. Lactose has failed with him. Sometimes no single drug acts, then it is as well to try a combination. Powerful drastic purgation should not be employed unless the patient has a good pulse, and the strength fairly maintained.

Dr. J. Tyson (*Phila. Med. News*, vol. i., p. 671, 1890), after a study of cases of dropsy in which the tissues have been waterlogged to a high degree and in which ordinary therapeutic measures have failed, has come to the conclusion that to administer diluents, when all the tissues, including the kidneys, are gorged with transuded serum, and when there is no movement in the lymph spaces and vessels, is only to increase the mischief. To discharge the liquid, more fluid must be taken out than taken in. As the kidneys have lost, though it may be merely temporarily, the power of elimination, ingestion must be restricted till the balance is restored. For this purpose the quantity of fluid ingested, as well as the quantity excreted, must be carefully watched. Tapping of the great cavities is, it need hardly be said, a great aid in restoring the balance.

29. Excretion of balsams in the urine.

Dr. E. Stockman (*Brit. Med. Journ.*, June 14, 1890).—The use now made of balsam of Peru in the treatment of tubercular disease has aroused considerable interest as to whether it is apt to produce nephritis during its excretion by the kidneys. Dr. Stockman, therefore, has made a number of observations on it and other balsams with a view of determining this. Strictly speaking, the term balsam should be confined to resins and oleo-resins which contain cinnamic or benzoic acid, or both, and hence, although commonly used, is not properly applicable to simple oleo-resins such as Canada balsam or balsam of copaiba. The observations were made on the author, Dr. Carruthers, and on rabbits, and were limited to the four balsams of the *B. P.*, namely, balsam of Peru, balsam of tolu, prepared storax, and benzoin. As a result of Dr. Stockman's observations, he proved that all these balsams can be given in as large doses as is ever desired in practice, without the risk of producing albuminuria or nephritis. Cases of albuminuria following the use of balsam of Peru, however, have been recorded; thus Litten (*Charité Annalen*, vii., 187, 1882) states that a case of scabies, treated with inunctions of balsam of Peru, after some days developed dropsy and albuminuria, with blood in the urine and tube casts. After recovery, 20 grms. were rubbed into the skin on several occasions, and each time

caused acute nephritis. Litten experimented on other patients and on rabbits with the same balsam of Peru, and they did not suffer in the same way. Dr. Vamossy (*Wiener Med. Presse*, 1889, 691, 733, 825), who used balsam of Peru in the form of gauze plaster and emulsion for the treatment of local tuberculosis, found that albumen occurred in the urine in four out of twenty-eight cases. With regard to Dr. Litten's case, the patient had previously suffered from plumbism, so that changes were probably beginning in his kidneys, which might not affect a healthy kidney, but might seriously irritate one that was already diseased. In Dr. Vamossy's cases no account is given of the method of testing for albumen, and it has been found, at least in some of the recorded cases of albuminuria after the administration of balsams, that a resinous body in the urine has been mistaken for albumen.

30. Elimination of iodide of potassium by the urine.

Dr. Ehlers (*Annales de Derm. et de Syph.*, No. 5, 1890), from repeated analyses of urine, has found that when doses of 20 grains are administered, about 75 per cent. of the salt is eliminated. When symptoms of iodism occur, they are caused by the retention of the iodide in the system, which happens when only about 50 per cent. is eliminated. Entire elimination of the iodide ceased about four or five days after the administration was stopped. Doses above 20 grains do not appear to be completely absorbed.

31. Lipuria.

Dr. Drecker (*Deutsche Med. Zeitung*, April 7, 1890) reports a case of fat containing urine in a delicate child of two years, but born of healthy parents. A year previously she had been ill with symptoms of lung and gastric catarrh, but had recovered. About the middle of February 1890 she began to ail, and developed symptoms pointing to scarlet fever running its course without the rash being observed by the parents. When first seen she appeared heavy, was thirsty, and the skin finely desquamating. The tongue was furred, there was vomiting, and there were frequent stools of white pap-like consistence. The lumbar region was tender on pressure, the belly distended with ascitic fluid, but the legs and arms were not swollen. The urine was scanty, but clear in colour, and its surface covered with a butter-like substance, which on heating became oily. The urine then grew milky in appearance, like thin broth with fat globules floating in it. It left a greasy mark on blotting-paper. The butter-like substance dissolved in chloroform and ether, and was saponified by liquor potassæ. The amount of fat yielded by the urine was 4.35 per cent. The urine was free from albumen.

32. Suppression of urine.

M. Férrol (*Le Progrès Méd.*, p. 152, 1890) related at the Société Médicale des Hôpitaux a case of suppression of urine continuing eight days, that ended in recovery. The suppression was apparently caused by uric acid calculi. He had voided several small calculi previously, but from January 7 to 15 no urine was passed; suddenly on January 15 the obstruction yielded, and that day he passed 18 pints of urine, containing 5 ounces of urea. A small uric acid calculus, the size of a pea, was discharged the same day. The symptoms during the period were slowing of the pulse, and dilatation of the pupils, and ammoniacal odour of breath; there was, however, no vomiting, nor marked dryness of the skin, nor any acute pain. After the great discharge of water on January 15 he was exhausted, and there was some slight cerebral excitement, but two days afterwards he seemed to have recovered his normal condition. He was treated by dry cupping over the loins—the faradic current—for two days; various diuretics and inhalations of oxygen throughout; on the sixth day a Turkish bath; on the seventh day purgation, causing frequent watery motions before the obstruction gave way.

33. Treatment of renal colic.

Dr. Murray (*Prov. Med. Journ.*, October, 1889) considers belladonna more efficacious than opium in relieving renal colic. He also contends that if the drug is pushed in sufficiently large doses and for long enough, the removal of the calculus, first from the pelvis of the kidney to the bladder, and subsequently from the bladder *per urethram*, will be effected, and instances cases supporting this assertion. The special point Dr. Murray insists on in these cases is to push the drug to its toxical stage, and keep up its action after pain has been relieved, until a fair time has been allowed for the expulsion of the stone. The dose he recommends is forty minims of the tincture, repeated every two hours, increasing or diminishing the dose according to its effect.

[Belladonna, no doubt, is useful in relieving spasm in renal colic and so permitting the downward descent of the concretion, but we must not forget there are other resistant forces to be overcome besides contraction of the ureter by muscular spasm. One very frequently is caused by the swelling of the mucous membrane of the pelvis of the kidney and ureter, or by the obstruction of the latter with muco-purulent masses and blood clots. Therefore, whilst giving belladonna as advised by Dr. Murray, it is as well to combine other measures with it. Thus draughts of distilled water, diuretic salines, doses of turpentine with opium, help to sweep out the latter, and also diminish pyelitis.]

GOUT, RHEUMATISM, AND RHEUMATOID ARTHRITIS.

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I. The chemistry of gout.

Gout.—During the past year our knowledge of the chemistry of gout has been materially enriched by the valuable researches of Sir William Roberts, which are embodied in two most interesting papers read before the Royal Medical and Chirurgical Society (*Med. Chir. Trans.*, lxxiii., pp. 245 and 339; abstracts, *Lancet*, 1890, i., pp. 703 and 1302). These researches are of especial interest at the present time, when the chemical problems presented by this disease are attracting less attention than formerly, and the share of the nervous system in its causation has been so ably maintained by Sir Dyce Duckworth in his recent treatise on the subject, in which the pathology of the disease is most fully discussed.


Sir William Roberts begins by pointing out that the presence of uric acid in human urine is somewhat of an anomaly, since we have in urea a far more suitable vehicle for the elimination of nitrogen from the system; and he suggests that possibly the uric acid is of the nature of a vestigial remnant.

He points out that uric acid being a bibasic acid forms two orders of salts—the neutral urates and the biurates (M_2U and MHU)—but that, as Dr. Bence-Jones was the first to show, it also forms a series of hyperacid combinations, in which one molecule of acid urate is combined with a molecule of uric acid (MHU , H_2U). Of these various types of salts the neutral urates are not found in animal bodies, and the biurates are only met with in the form of gouty concretions. The quadrurates, on the other hand, are present in normal human urine, and constitute the entire urinary excretion of birds and serpents. Water has the power of immediately decomposing the quadrurates with the formation of biurate and uric acid. In the urine, the biurate so formed is immediately reconverted into quadrurate, owing to the presence

of the superphosphates; and in this way the entire quantity of uric acid is ultimately thrown down in the free state.

The presence of saline substances and pigments in the urine tends to retard this process, whereas the deposition of the uric acid is favoured by high degrees of acidity, by poverty of saline substances and pigment, and by the presence of a high percentage of uric acid; of these factors the most important is probably the degree of acidity.

In his second paper Sir William Roberts follows the quadrurates into the blood, and studies the changes which lead up to the deposition of sodium biurate in the form of gouty tophi. This deposition is apparently the result of a tendency which the quadrurates exhibit to become converted into biurates, in an alkaline solution, by taking up an additional atom of base. Under normal conditions the quadrurate which is circulating in the blood is removed by the kidneys, but in gouty persons the quadrurate tends to be retained longer than usual in the blood, either as the result of a deficient action of the kidneys, or some other cause; and while circulating in a medium rich in sodium carbonate becomes gradually converted into the insoluble biurate, which is with difficulty eliminated by the kidneys. When the amount of biurate thus accumulated in the blood has reached a certain point, it is precipitated in the crystalline form in the joints, thereby determining an attack of gout. Sir William Roberts found that blood serum, or a solution containing similar saline ingredients, was much less capable of dissolving the biurate, and holding it in solution, than pure water. Uric acid is taken up freely by such media in the form of quadrurate, but in the course of a few hours is again precipitated in the form of crystalline needles of sodium biurate, such as constitute gouty concretions. Sir William Roberts describes these three stages as "solution, maturation, and precipitation." He found that precipitation occurred sooner in synovia than in blood serum; that increased alkalinity of the medium favours solution, but does not retard maturation or precipitation: that the addition of salts of sodium hastens maturation and precipitation, but that the addition of salts of potassium, lithium, or magnesium, has no effect either way, except that potassium chloride appears to retard maturation; that maturation is hastened, and precipitation occurs sooner at a temperature of 100° Fahr. than at the ordinary temperature of a room; lastly, that the proportion of uric acid in solution has the greatest influence in determining the speed of maturation, and the advent and copiousness of the precipitate. It was found that when the proportion of uric acid was less than



1 in 4,000 the precipitation was gradual and scanty, and was postponed until the twelfth or fourteenth day.

It will be remembered that Dr. Schetelig, of Homburg, gave recently before the Royal Medical and Chirurgical Society an account of a test devised by Dr. Pfeiffer, for which it was claimed that the gouty condition of a patient could thereby be readily detected. The test consists in passing the urine of the patient through a filter charged with crystals of uric acid, the total quantity of uric acid present being estimated before and after filtration. Pfeiffer maintains that the difference between these two estimates is a measure of the amount of free uric acid present; such free acid being retained by the uric acid filter. The presence of such free uric acid is regarded as indicative of the gouty state.

Sir William Roberts has shown (*Lancet*, 1890, i., p. 9) that this test does not give the indication which is claimed for it. He found that acid urines, when passed through the uric acid filter, do leave some of their uric acid upon it; and in some instances this deposition was almost complete, the filtrate throwing down very little more uric acid when treated with hydrochloric acid. When, however, he endeavoured to obtain, in this way, evidence of the presence or absence of the gouty state, the results were by no means coherent. In the case of a middle-aged man in perfect health, who had never shown any gouty symptoms, and did not come of a gouty family, the urine tested on four successive days showed on one a highly gouty state, on two others a moderately gouty state, and on the remaining day an absence of gout.

Sir William Roberts further found that the uric acid filter does not really perform the functions assigned to it, viz., that of separating free from combined uric acid; for the same urine when repeatedly filtered lost progressive quantities of uric acid, so that three filtrations were, as a rule, sufficient to arrest the whole. He attributes the arrest of the uric acid by the uric acid filter to the instability of the urates, which readily deposit their uric acid, and do so the more readily in the presence of crystals of that substance. He believes that several factors have a share in rendering the results uncertain, such as the degree of acidity of the urine, its richness in uric acid, the rate of filtration, and the quantity of uric acid originally placed upon the filter. He further points out that the object of the test may be attained in a simpler and surer way. In the gouty state there is an exaggerated tendency to the premature deposition of uric acid from the urine, and the degree of this exaggeration may be estimated by preserving specimens of the urines of several days (of twenty-four hours) in corked phials in a warm place (the warmth check-

ing the deposition of amorphous urates), and guarding from fermentation and putrefaction by the addition of a few drops of chloroform.

If crystals habitually appear in the course of a few hours, this will indicate a morbid tendency to gravel, *i.e.*, the uric acid diathesis; whereas if no uric acid is deposited in the first twelve to twenty-four hours or more, the absence of such tendency may be granted.

Some fresh investigations of the presence of uric acid in the blood have been carried out by Von Jaksch (see *Deut. Medicinische Wochenschrift*, 1890, p. 741), who gives to the condition the anything but euphonious name of "uricacidæmie." He directs his attention to two questions: (1) whether in the acid intoxication described by himself, Peiper, and others, uric acid has any share, and (2) whether the presence of uric acid in the blood is pathognomonic of gout.

He employed the methods of Salkowski and Ludwig, which he found satisfactory, both for the qualitative and quantitative determination of uric acid in blood. The blood was obtained by wet cupping.

In 90 to 300 grammes of blood from each of nine healthy persons, no recognisable amount of uric acid, nor of xanthin bases, could be detected. In nervous diseases, such as tabes, multiple sclerosis, multiple neuritis, and cerebral tumours, no uric acid was found, but xanthin bases, and especially hypoxanthin, were often present. In eight cases of typhoid the results were negative, but in one other in which the temperature had come down a trace of uric acid was detected. Also in the afebrile stage of a case of intermittent fever some uric acid was found, but none during the febrile stage. In diseases of the alimentary tract uric acid was only found when there was anæmia. It was found in cases of heart-disease with cyanosis; often in pleurisy with effusion, and always in the febrile stage of pneumonia. No uric acid could be detected in the blood of patients with rheumatic fever. In cases of renal disease, and of primary and secondary anæmia, considerable quantities were found. Von Jaksch, therefore, gives a negative answer to his first question, since he finds that fever is unfavourable to the appearance of uric acid in the blood. To the second question also he gives a negative answer. He finds that all processes which cause the blood to be charged with carbon dioxide, cause uric acid to appear in the blood, and he ascribes this result to a disturbance of the gaseous interchange in the lungs, which is sufficient to cause uric acid to make its appearance in the blood in pneumonia, even in spite of the febrile

condition. He further attributes its presence in cases of nephritis and anæmia to a defect of red blood corpuscles, which in health accomplish the further oxidation of the uric acid. In connection with these results, it may be remarked that it has long been known that uric acid may exist in small quantities in the blood of non-gouty persons, and traces of this substance have been found even in healthy blood. It is only its presence in greatly increased quantities which is characteristic of gout.

The material collected by the Collective Investigation Committee of the British Medical Association, in connection with the effects of intemperance, has enabled Dr. Edward Casey (*Brit. Med. Journ.*, 1889, i., p. 116) to extract some interesting information as to the causes of death among gouty men. He finds that Bright's disease is apparently three times as important as a cause of death among the gouty as among the rest of the community at all ages. The effects of gout in the production of heart disease appear to be strongly marked during the period of middle life, but not in the later years. Apoplexy is also shown to be unduly common in the gouty.

There appears to be some antagonism between gout and phthisis, only 5·7 per cent. of the gouty patients dying of phthisis, as against 12·3 per cent. of the non-gouty patients. It might be supposed that this apparent antagonism was really due to the fact that the age of greatest liability to phthisis is passed before the age at which gout is commonest is reached; but an examination of Dr. Casey's figures shows that the relation holds equally good when the patients between forty and sixty-five years of age are alone considered.

An interesting lecture by M. Lancereaux is reported in the *Union Médicale* (1890, No. 19) by MM. Guyon and Dieulefoy. In it M. Lancereaux expresses his belief that the presence of an excess of uric acid in the blood of gouty patients is a secondary rather than a primary phenomenon of the disease, and is connected with a disturbance of nutrition, which disorder is dependent upon some more general morbid condition. He considers that it has not been conclusively proved that gout is dependent upon errors of diet, since the disease is sometimes developed in persons who have always observed strict temperance. On the other hand, M. Lancereaux considers that there is good reason for believing that the excess of uric acid in the blood is the effect of some disorder of the nervous mechanism which controls nutrition.

2. Abarticular gouty lesions.

Some interesting examples of pulmonary lesions, apparently of gouty origin, have been recorded by Dr. Potain (*La Semaine*

Médicale, 1890, p. 41) and Dr. Debout d'Estrées (*Lyon Médical*, 1890, lxiii., p. 303).

Potain includes asthma, bronchial catarrh, and emphysema among lesions which are occasionally of gouty origin, and considers that congestion of the lungs is sometimes a manifestation of the same disease. He quotes the instance of a man who had impaired resonance and distant breath sounds, with bronchophony, at the left base, whose physical signs were not altered by any change of position. This condition developed on the subsidence of an attack of gout in the great toe.

In one form the apex is affected, and the condition might be mistaken for phthisis; but after a few weeks the signs clear up, only to return in the following year. The changes may eventually become permanent, and assume a truly tubercular character.

He has found bleeding or wet cupping, and a milk diet, useful in the more acute stages of these conditions.

Dr. Debout d'Estrées' patient was a man aged sixty-two, who had been subject for ten years to attacks of gout of medium intensity, and had also suffered from renal colic and hæmaturia at times. In 1887 he was attacked with gouty orchitis, followed by an attack in the right great toe. Then followed a congestive attack in the right lung, which was peculiar in that the dulness, which only extended over four fingers'-breadths, was situated at the junction of the middle and lower thirds of the lung; and above and below this level the respiratory murmur was natural.

3. Prophylaxis and treatment of gout.

No important advances in the prophylaxis and treatment of gout are to be recorded.

In a paper in the *New York Medical Journal* (Feb. 1, 1890) Dr. Mendelson enters at considerable length into the question of prophylaxis, as it applies to those who have never suffered from gout, but who are likely to develop the disease, on account either of an hereditary tendency or the nature of their surroundings; and also to those who, having already suffered, are anxious to ward off further attacks.

To the members of the first class, who are, for the most part, children and young adults, he considers diet to be of the highest importance, insisting upon the importance of the careful avoidance of over-feeding, on attention to clothing, as well as to diet and exercise. Adults who suffer from gouty manifestations should avoid all rich and indigestible foods. Dr. Mendelson does not prohibit starchy matters and sugar unless the patient suffers from dyspepsia. In many well-marked and advanced cases of gout he has found relief to be given only by a strictly animal diet,

but he considers that green vegetables are also very valuable. He advises gouty patients to abstain entirely from alcoholic drinks, and, above all, from champagne and malt liquors. Riding is, in Dr. Mendelson's opinion, the form of exercise which is suited, above all others, to gouty subjects.

Dr. Mortimer Granville again expresses (*Med. Press and Circular*, 1890, i., p. 549) his belief that the dietary which is usually prescribed for gouty persons is based upon entirely erroneous principles. He repeats his recommendation of an animal diet, such as is usually given to diabetics, except that he allows ordinary bread in very small amounts. He does not debar the patient from sugar in moderate quantities, but forbids all spirits, as tending to irritate the kidneys. As alcoholic drinks he allows dry champagne, very well-matured port, and sound claret, and even, in some cases, Pilsener beer.

4. Treatment of gouty concretions.

The celebrated electrician, Mr. Edison, presented to the International Medical Congress, at its Berlin meeting, a paper on some experiments on the application of electrical endosmose to the treatment of gouty concretions (*British Medical Journal*, 1890, ii., p. 413). His experiments were based upon the power possessed by an electric current of accelerating the diffusion which takes place between solutions separated by a porous diaphragm, the solution being carried from the positive to the negative pole. It occurred to Mr. Edison that, by means of electricity, the introduction of lithium salts, and their action upon gouty tophi, might be facilitated. He first tried whether a solution of lithia passed more quickly through an animal membrane with than without electrical aid, and the current was found to have a distinct accelerating power. He then experimented upon a healthy man, who was placed in a chair, and had both hands immersed to the wrists in glass jars, the one containing a 2 per cent. solution of lithium chloride and a platinum electrode, and the other a solution of common salt with the negative electrode. A current of 4 milleampères was allowed to pass, which was as much as could be conveniently borne. The treatment was continued for two hours daily, during the course of one week. His urine was collected during the week, and after evaporation the lithium band could be detected with the spectro-scope. It was further calculated that the equivalent of 0.55 gramme of chloride of lithium was excreted during the week.

A man with well-marked tophaceous gout was next submitted to the treatment. It was found that he could stand a current of 20 milleampères without inconvenience, and this strength of

current was applied for four hours daily during six days. At the end of this time the girth of his left little finger was found to be reduced from 8·6 centimètres to 8·2, and the pains from which the patient had previously suffered were relieved. The treatment was continued for two days more, during the following week, but he was obliged to give up attending on account of the distance. At the end of a fortnight the measurement of the finger was 8·0 centimètres. Lithia was first tried instead of the chloride, but the prolonged immersion, in even so weak a solution as 1 per cent. was found to blister the hands.

Dr. Aronsohn, of Ems, calls attention to the value of the Wilhelmsquelle at that place in the treatment of gout (*Deutsche Med. Wochenschr.*, 1890, p. 381), and particularly recommends it in those cases in which gouty patients suffer from catarrh of the respiratory organs.

5. Rheumatism.

The following books on rheumatism and allied diseases have appeared during the past year :—

"The Rheumatic Diseases (so-called)." H. Lane and C. J. Griffiths, Bath.

"Rheumatism and Gout." F. Satterlee, Detroit, U.S.A.

"A Treatise on Rheumatism and Rheumatoid Arthritis." By Archibald E. Garrod, London.

In some interesting lectures which are reported in the *Union Médicale* (1889, 3^es., xlviii., pp. 469 and 577) M. Lancereaux expresses views which are in accordance with those held by the majority of observers in Great Britain: he regards acute rheumatism and rheumatoid arthritis (*rhumatisme chronique*) as entirely distinct disorders, and urges the desirability of designating them by different names.

The vexed question of the relation of chorea to articular rheumatism has been discussed in several papers.

In the laryngological section of the British Medical Association, at the meeting in Leeds in 1889, a discussion took place on the relation of tonsillitis to rheumatism, of which a report will be found in the *British Medical Journal*, 1889, ii., p. 584 *et seq.* Some of those who took part in the discussion considered that the association, which undoubtedly exists, is of somewhat the same nature as that between rheumatism and scarlatina, the articular lesions being of the nature of sequelæ; whilst others maintained that in many instances tonsillitis is a form of rheumatic inflammation, and must be included among the manifestations of the rheumatic state.

In the *Illustrated Medical News*, 1889, iii., p. 267, appeared

an interesting account of the subcutaneous rheumatic nodules, by Dr. J. A. Coutts, who has also described (in association with the writer) some cases in which periosteal nodes were developed upon the subcutaneous surface of the olecranon, in the course of undoubted rheumatic attacks (*Clin. Soc. Trans.*, xxiii., p. 39).

Dr. W. B. Hadden also has described (*Clin. Soc. Trans.*, xxiii., p. 277) a most interesting case of a boy who exhibited the typical subcutaneous nodules, but who had never suffered from articular rheumatism or chorea, and whose heart showed no signs of disease.

6. The pathology of rheumatism.

In the *Provincial Medical Journal* for 1889 (pp. 18, 78, &c.) Dr. Harkin criticises the current theories of the pathology of rheumatic fever, and the treatment which is usually adopted. He himself still holds the views which he expressed in the *Dublin Medical Journal* in 1881, namely, that the exciting cause of the disease is a chill, which produces its effects through the agency of the nervous system. He further holds that the primary lesion of acute rheumatism is a specific form of endocarditis, and that from this, as a starting-point, all the various other developments and complications of the malady spring. Acting upon this belief, Dr. Harkin applies a blister, four inches long by three broad, over the cardiac region. The blistered surface is then dressed with cotton wool. Occasionally, if the patient be plethoric, he applies leeches to the precordial region, or cups to the back, between the lower angle of the scapula and the spinal column. He rarely prescribes any medicine, but in long cases employs opium, alkalies, or salicin as adjuvants. Dr. Harkin gives the notes of cases treated in this manner, in which recovery was rapid and complete.

The theory which regards rheumatism as due to micro-organisms has gained many adherents of late years, especially upon the Continent of Europe. In the *New York Medical Record* (1889, p. 239) Dr. Leonard Weber, of New York, expresses his opinion in favour of this view. He considers that it is nearly proved that acute rheumatism is not due to the chilling of the heated surface of the body; that rheumatism belongs to the group of miasmatic-infectious diseases, and appears in an epidemic form at times; and, lastly, that it is apt to appear in certain houses, owing to the infiltration of the subjacent soil with the specific virus. He bases his conclusions chiefly upon the observations of Immermann, Edlefsen, and Friedländer, which have been recently published.

Dr. B. N. Dalton (*Brit. Med. Journ.*, 1890, i., p. 472) advances an opinion, which had been already expressed by Dr. Haig-Brown,

that rheumatic fever may be caused by exposure to the effluvia of drains, and brings forward arguments in support of its bacterial origin. He considers the cases in which rheumatism occurs in association with scarlatina and tonsilitis as examples of mixed infection, the two poisons being absorbed at the same time. He, moreover, suggests that the rheumatism follows the tonsilitis because the virus of the latter has a shorter period of incubation.

Dr. Robert Bell (*Lancet*, 1890, ii., p. 16) attaches great importance to habitual constipation as a factor in the causation of acute rheumatism, and holds that the disease is far less likely to occur in those whose bowels are in perfect order. He is inclined to think rheumatism is often due to a vitiated condition of the blood arising from faecal absorption; but that the specific microbe may enter the system by other channels, the vitiated blood supplying a suitable nidus.

7. The salicylic drugs.

Dr. Haig considers salicine to be a considerably less potent anti-rheumatic drug than sodium salicylate, and this he attributes, in a paper read before the Royal Medical and Chirurgical Society (*Med. Chir. Trans.*, lxxiii., p. 297), to its having less power of increasing the excretion of uric acid. His experiments show that, dose for dose, salicylate of sodium is thirteen times more potent in this respect than salicine.

Taking this difference as a starting point, Dr. Haig approaches the question of the pathology of rheumatism, and argues that there is good reason for believing that uric acid is the actual rheumatic poison. In support of this view, he adduces the occurrence in rheumatic patients of certain minor troubles, which he believes to be due to the presence of uric acid in the blood; and the frequency with which rheumatism is developed as a sequel of febrile disorders, such as scarlatina and tonsilitis, which lead to a diminution of the natural alkalinity of the blood. The differences between gout and rheumatism he considers to be in great measure due to differences in the metabolic processes in the young and old. He ascribes the absence of any excess of uric acid from the blood of patients suffering from rheumatic fever to the high and rising acidity, which drives the uric acid out of the blood; and to its accumulation in the joints, where he supposes that it sets up the arthritis which is the most constant feature of the disease.

Our knowledge of the salicylates has been considerably advanced by a most valuable paper by Prof. Charteris, of Glasgow (*Med. Chir. Trans.*, vol. lxxiii., p. 141). Professor Charteris

found that whereas salicine, and the natural salicylic acid and its salts, produced no deleterious effects when administered in thirty-grain doses to rabbits weighing two and a half pounds, the artificial salicylic acid, in doses of ten grains, and sodium salicylate prepared therefrom, in doses of eighteen grains, were fatal to similar rabbits. He further discovered an impurity in the artificial acids, which was very soluble, and which he believed to be probably derived from creasotic acid. A single grain of this impurity proved fatal to a rabbit weighing two pounds. Further experiments showed that this impurity could be removed without much difficulty, by first preparing calcium salicylate, and then decomposing this by means of hydrochloric acid; the salicylic acid so obtained being afterwards recrystallised. The purified acid, when administered to rabbits in doses of fifteen grains, produced none of the ill effects noticed after the administration of the ordinary artificial acid.

It is satisfactory to note that these investigations of Professor Charteris have already led to the introduction of improvements in the preparation of the commercial drugs.

The various recently introduced antipyretic drugs have been employed, especially by German physicians, in the treatment of acute rheumatism, and some of them with considerable success.

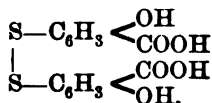
All who are interested in these results should consult a paper by Dr. Raphael Hirsch, entitled "Neueres über die Therapie des Rheumatismus" (*Deutsche Med. Wochenschr.*, 1890, pp. 46 and 68). In this paper Hirsch reviews the results obtained with chinolin, kairin, antipyrin, antifebrin, phenacetin, salol, and naphthalol. His conclusion is that we have in antipyrin, phenacetin, and salol, drugs which, like the salicylates, have specific actions in cases of acute articular rheumatism; and he considers that we need them all, since where one fails another may have beneficial effects, and that each possesses certain advantages.

In the second part of his paper Hirsch goes on to speak of the effects of the same drugs in certain conditions more or less associated with articular rheumatism, viz., neuralgia, urticaria, and chorea, and, in conclusion, gives a valuable bibliography which contains references to the various papers in which the effects of the above drugs have been described.

Dr. Lindenborn (*Berliner klinische Wochenschrift*, 1889, p. 568) has described the results obtained with a compound derived from salicylic acid, the di-thio-salicylate of sodium II.

There are two isomeric di-thio-salicylic acids, which are distinguished by the figures I. and II. They consist of two mole-

cules of salicylic acid, linked together by two atoms of sulphur, which replace two hydrogen atoms ; the formula is—



Dr. Lindenborn has only tried sodium-di-thio-salicylate II., and this in only a very limited number of cases, viz., four of acute rheumatism, one of monarticular rheumatism, and one of gonorrhœal arthritis. The salt, which is a greyish powder, very hygroscopic, and easily soluble in water, was given in doses of three grains morning and evening in slight cases. In severe cases three grains were given in the morning, and the same dose hourly up to three or four times in the evening. The urine did not give the salicylic reaction after the administration of this drug.

In slight cases the pain and fever disappeared in two days, in severe cases in six days at the latest. In the gonorrhœal case, also, an excellent result was obtained.

Dr. Lindenborn considers that the di-thio-salicylate has advantage over the salicylates, in that, being more potent, smaller doses suffice ; there is no tendency to collapse, no buzzing in the ears, and no disagreeable after-effects. In one case only, profuse sweating was noted in a patient who was taking twelve grains daily.

It may be mentioned that this drug has a very disagreeable taste.

S. Betol.

Kobert (*Therap. Monatshefte*, 1887, i., p. 164 ; ii., p. 220) recommended naphthalol or betol, a compound resembling salol in composition, but differing from it in the substitution of naphthol for carbolic acid. $\text{C}_6\text{H}_4\text{OH}, \text{COO}, \text{C}_{10}\text{H}_7$.

Kobert found betol to be as effectual as salol in cases of acute rheumatism, and to be better borne. Betol is tasteless and insoluble in water, and no toxic effects were observed in cases in which doses of five to seven and a half grains were given daily for some weeks.

Sahlb (*Therap. Monatshefte*, 1887, i., p. 212 ; ii., p. 359) replied that he had already used betol some time before it was advocated by Kobert, and that, although he had seen good effects in some cases, the results were more often unsatisfactory. He considers this compound to be distinctly inferior to salol, because of the smaller proportion of salicylic acid which it contains ; its less ready decomposition in the alimentary canal ; and the

replacement in it of the active phenol by the therapeutically inert naphthol.

Antifebrin also has been tried extensively in Germany. **Messrs. Cahn and Hebb** (*Berliner klin. Wochenschr.*, 1887, p. 27) soon arrived at the conclusion that it had the same specific action as the salicylate in rheumatic fever, and favourable accounts of the effects of this drug have also been given by **Snyers** (*Therap. Monatshefte*, 1887, p. 66), **Landgraf** (*Deutsche Med. Wochenschr.*, 1886, p. 839) and **Reise** (*Ibid.*, 1886, p. 835).

9. Phenacetin.

The most recently recommended drug of the antipyretic class is phenacetin or acetphenetidin. As early as 1888 **Eohden** (*Deutsche Med. Wochenschr.*, 1888, p. 366), after making a trial of this drug in cases of rheumatic fever, found that it yielded as good results as the salicylates and antipyrin, or even better. Similar evidence was shortly afterwards brought forward by **F. Müller** (*Therap. Monatshefte*, 1888, p. 355), who found phenacetin a most valuable drug in the treatment of acute articular rheumatism, as also of neuralgia. In some cases a certain amount of residual pain was left in the joints, but this was easily removed by a dose of salicylate or by massage. **Mahnert** (*Deutsche Med. Wochenschr.*, 1888, p. 1027) states that under treatment with phenacetin the swelling of the joints rapidly subsides, and the pain and fever quickly disappear. Amongst others who have spoken favourably of the anti-rheumatic action of phenacetin the names of **Rifat**, **Collischonn**, and **Cattani** (see *Virchow and Hirsch Jahresbericht*, 1888, i., p. 375) may be mentioned.

Rifat (*Therap. Monatshefte*, 1890, ix., p. 359) gives phenacetin in fifteen-grain doses three times daily, and has sometimes administered as much as two drachms in the course of twenty-four hours. **Collischonn** (*Therap. Monatshefte*, 1890, iv., p. 139) considers that in order to ensure the best results large doses should be given. In some cases of acute gonorrhœal arthritis phenacetin has been given with very good effect.

It is not claimed for phenacetin that it has any more power than the salicylates possess of warding off the cardiac and other visceral lesions of acute articular rheumatism; but it would seem that, in common with several other drugs of the aromatic group, phenacetin has a considerable power of controlling the articular pains and swelling.

10. Treatment of the more chronic articular lesions.

Hochhalt (*Pesther Med. Chir. Presse*, 1890, No. 22) recommends the administration of pilocarpine in doses of 0.01 to 0.02

gramme in chronic forms of arthritis, and especially in cases in which there is obstinate serous effusion and a slight degree of fibrous contraction.

Dr. Douglas Kerr, of Bath (*Brit. Med. Journal*, 1889, i, p. 1165), points to the good effects derived from thermal treatment, in cases in which acute articular rheumatism, after yielding readily at first to ordinary treatment, "hangs fire" after a time, and is no further relieved by drugs, continuing for week after week without improvement, with occasional subacute exacerbations.

He gives the notes of the case of a young man, aged eighteen, who suffered in this way, and who had a loud systolic mitral murmur, but who recovered in a most satisfactory manner when he was submitted to the Bath treatment.

11. Rheumatoid arthritis.

In his little book on "Osteo-Arthritis," Dr. J. Kent Spender has again called attention to certain early symptoms of this disease, which he had already described in an interesting paper read before the Medical Society of London (*Med. Soc. Proc.*, xi, p. 209). These are a remarkably rapid and high-tension pulse, observed in many cases; a disturbance of the cromatogenous function of the skin, leading to the formation of patches of pigmentation in various situations, and of spots resembling freckles; local sweating; and certain peculiar pains, especially a pain located in the muscles of the ball of the thumb; and certain other neural symptoms.

Dr. Spender holds the view that the articular affection of rheumatoid arthritis is of nervous origin, and in a large group of cases is merely one out of many signs of a profound nerve disorder. In the second part of his book he discusses the early treatment of the disease. He finds the Bath treatment to be of the greatest service in the group of cases which he calls the essentially arthritic and muscular, provided that there is no ankylosis or hopeless atrophy. He speaks highly of the combination of shampooing and dry douching, combined with wet douching. He commences the treatment with simple immersion in the Bath waters, and gradually substitutes the douche-massage as carried out at Aix-les-Bains.

In the internal treatment he considers cod-liver oil, iron, and arsenic to be the chief helps. Local or general sweating is relieved by strychnine or belladonna. For the relief of pain he finds chloral very valuable. For local treatment he recommends sponging with very hot water, or the painting of a ring of iodine liniment above and below the affected joint. If there is much synovial effusion, the joint may be kept at rest by means of mill-

board splints for a short time, but not long enough to allow the muscles to become seriously weakened. Dr. Spender considers that more rigid fixation of a joint by plaster of Paris, or other means, is distinctly to be avoided.

In a paper which appeared in the *Lancet* in 1889 (ii., p. 947) Dr. Spender maintains that what has been known as acute rheumatoid arthritis has no clinical existence; but that the cases so described are merely examples of the development of rheumatoid arthritis as the sequela of rheumatic attacks. In these cases the transition from the rheumatism to rheumatoid arthritis may, he considers, be so gradual as to be often imperceptible.

He considers that the recognition of these conditions has important bearings upon treatment, for when the transition has taken place the ordinary anti-rheumatic remedies do harm rather than good. He recommends the substitution for them of tonics and cod-liver oil, and such generous wines as Port and Burgundy. Dr. Spender considers that most good is to be expected from thermal treatment when there is an antecedent history of rheumatism or gout, but that in those cases in which osteo-arthritis is a sign of local or general deterioration internal medicinal treatment is, at least, of equal value.

In their book on the rheumatic diseases, so called, Messrs. Lane and Griffiths subdivide the cases usually included under the name of rheumatoid arthritis into three classes, viz., early cases, for which they retain the name of rheumatoid arthritis; later cases of the same disease, which they designate as osteo-arthritis; and the post-rheumatic cases which they consider to be of a quite distinct nature, distinguished by certain clinical peculiarities, and to which they assign the name of rheumatic arthritis.

These authors, who have had opportunities of observing very large numbers of cases sent to Bath for treatment, embody the distinguishing features of chronic rheumatic and of rheumatoid arthritis in a table; they regard the absence of the neurotic symptoms in the former affection as one of the chief differences between it and rheumatoid arthritis. They differ, moreover, from other observers in holding that, although in the rheumatic form the tendon reflexes are often increased, in true rheumatoid arthritis they are usually normal or diminished.

A paper by M. Delmas on the "Pathology of the various affections grouped together under the name of chronic rheumatism" (under which he includes rheumatoid arthritis) appeared in the *Archives Gén. de Méd.*, 1889, 7^e s., 164, p. 267. This author, after discussing the relationship of these various chronic

lesions, speaks lightly of the value of thermal treatment for their relief.

M. Lancereaux in the interesting series of clinical lectures already referred to (*Union Médicale*, 1889, p. 889; 1890, pp. 781, 793) lends his support to the view that rheumatoid arthritis is essentially a dystrophic disease, and regards the various trophic changes in the skin and other structures which are met with in association with the articular lesions as kindred phenomena. He concludes with the following words:—"However various and complex these trophic lesions may be, they all find their explanation in the same nervous cause, and this cause it is which engenders chronic rheumatism itself. It is then logical to conclude that the trophic changes are in reality manifestations of the same order as those which constitute the rheumatism. This manner of looking upon them rests on clinical and anatomical observation, as well as upon experimental research."

M. Lancereaux combats the exacerbations of the disease with such drugs as salicylates, quinine and antipyrin; whereas in the more chronic forms he considers the iodide of potassium to be the most efficacious drug. He considers hydrotherapy and massage to be the useful adjuvants to the treatment.

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INFECTIOUS FEVERS.

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Summary.

Since the introduction by Brandt of the treatment of fevers by antipyretics, and the discovery that many and probably all of the blood diseases are due to living organisms or their products, almost all new suggestions of agents for treatment have been directed towards the two objects of reducing pyrexia and destroying the living organisms. And the records of the past twelve months which are given below afford few exceptions to this statement.

With regard to antipyretic treatment, the question as to the actual pathological conditions giving rise to pyrexia still continues to be discussed.

The discussion cannot be entered into here, nor is there any reason why successful treatment should be suspended until a theory can be found which is consistent with known clinical facts. In a paper, of which an abstract is given below, Dr. Cantani opposes the antipyretic treatment (except in hyperpyrexia) on the ground that all treatment which keeps down or depresses the temperature must do so by abstracting heat already formed, in which case the treatment is symptomatic, and therefore to be deprecated, or must act by preventing heat production, in which case it may actually do harm, for excessive heat-production is possibly a process which is favourable to the course of the disease.

The theory that the prevention of heat formation may exert a prejudicial action on the disease has been suggested before, though little evidence has been adduced to support it. It is possibly true, and if so, it must be granted, that we should abstain from the use of remedies which limit heat production, but it is inconsistent with this theory to urge at the same time that reagents which abstract heat already formed should also be abstained from. It has not been suggested by anyone that the excessive heat, after being formed, can be actually of service in the body. On the

contrary, it is known to exert an injurious action on the tissues, and, if sufficient in amount, a fatal action. There seems, therefore, to be no reason why, after the supposed benefits to the disease have been allowed to occur from over-heat production, the injurious effects resulting from its accumulation in the system shall not be suppressed.

Passing to the results of actual experience, the antipyretics have now been employed sufficiently long to show that at any rate, even when used by a routine method, they produce no dangerous effects, and although the high expectations which were held out that fevers would be cut short by cold baths have not been realised, there is considerable evidence to show that the judicious use of antipyretics does to some extent reduce the mortality. The report referred to below on the mortality from fever in the Paris hospitals confirms this. Apart from diminishing the mortality, it can hardly be contested that antipyretics greatly relieve the distress, discomfort, and sleeplessness, and make the course of the disease less trying to the patient. The treatment by the cold bath is trying to the patient and to the attendants, and in most cases its good effects are equally obtainable, and with much greater facility, by tepid sponging, which is probably of all antipyretic agents the best where the fever is only moderately high. Where there is hyperpyrexia the cold bath acts more quickly, and is therefore indicated. Of drugs, quinine has the advantage of tonic action not possessed by acetanilid and antipyrin, but it is slower in action; and acetanilid may be given provided that no cyanosis, no great feebleness of pulse, no malignancy in type of fever exists, and that the dose given shall not, at any rate to begin with, exceed 3 grains.

With reference to *antiseptic* methods of treatment, the difficulty remains that no known antiseptic is introduceable into the blood, without possible injury to the patient, in sufficient quantity to annihilate the organism causing the disease. There is scarcely any substance having antiseptic properties the use of which has not during the last two years been declared to be a specific abortive or cure for one or more of the infectious diseases. The records can be found in previous "Year-Books," but there is not one among the number which has been able to stand the test of experience. The discovery of Koch gives promise that before long some treatment, of which something more favourable can be said, will be found.

1. Salpyrine, a new antipyretic.

Dr. P. Guttman (*Berliner klin. Wochenschrift*, 1890, No. 37) writes: "This substance is a combination of salicylic acid and anti-

pyrin. It is obtained by adding gradually and in certain proportion salicylate of soda to a solution of antipyrin in a boiling state. The solution, on cooling, deposits crystals of salpyrin or salicylate of antipyrin, the formula of which is $C_{11}H_{10}NO_2C_7H_5O_2$. It consists of 57.7 per cent. of antipyrin, and of 42.3 per cent. of salicylic acid. A more simple method of preparing it, recently suggested by Mr. Scholviën, consists in gradually warming in a 'bain marie' a mixture of antipyrin and salicylate of soda with a very small quantity of water. Salpyrin is a white powder with a slightly sweet taste, and is without smell. It is but slightly soluble in water, but much more so in alcohol."

The author says that a depression of temperature is always produceable by the substance, with perspiration, and without any bad effects, but an urticarial rash at times occurs as it does after the administration of antipyrin. The dose should be 1 drachm to $1\frac{1}{2}$ drachm, and it is best to give this in several parts, of which the first should be 30 and the next 15 grains.

2. Paracresotinate—a new antipyretic.

Dr. Demme (*Journ. de Méd. de Paris*, April, 1890) writes: "This substance is a fine crystalline powder; sour, but not disagreeable in taste; soluble in 24 parts of warm water, and not re-precipitated by cooling. It has no injurious influence even in doses of 45 to 60 grains; it produces perspiration, and twenty minutes after it is taken the urine gives a violet colour with perchloride of iron, and traces of this test may be obtained for as long as 36 hours. It is an active antipyretic in all sorts of febrile conditions. The dose for children is 15 to 30 grains."

3. On antipyretic treatment of fever.

Dr. A. Cantani read a paper before the International Medical Congress at Berlin (*Med. Chron.*, p. 50, Oct., 1890) on this subject. He contests the theory that attributes pyrexia to altered action of nerve heat centres, and looks on chemical combustion processes as the essential cause of fever, which is an alteration of organic metabolism with increase of tissue combustion, though it is possible that in some cases the pyrexia is in part due to *retention* of heat. Fever can be diminished either by withdrawing heat or by diminishing its production; but the former means of course does not combat the cause, and is simply symptomatic treatment. Dr. Cantani regards fever as the general reaction of the organism against the changes produced in the general metabolism and in the blood. This reaction is necessary to effect a cure of the disease, and therefore has a favourable effect so long as the consumption of tissue is not increased to exhaustion. The proper remedies, therefore, for fever

are such as will act directly on the germs of the disease, such as quinine in malaria, mercury in syphilitic fever, but other antipyretic remedies, such as antipyrin, are hurtful, because they interrupt the course of the fever; they diminish the means of defence of the human organism, for a diminution of heat-production is equivalent to a diminution of vitality and of the power of resistance. Dr. Cantani, however, admits the danger of hyperpyrexia, and that consequently it may become desirable to depress the temperature, so long as by abstraction of heat we do not decrease the heat-production. Cold water treatment in its various forms does this, and also diaphoretics, but the chemical antipyretics must be looked upon with suspicion as general fever remedies.

[The theory of fever put forward by Dr. Cantani is that put forward many times before, and will not be discussed here. that pyrexia itself is favourable to the progress of the various fevers is not supported by the results which follow its systematic suppression; in cases where cold, etc., have been repeatedly resorted to and the temperature kept down to a certain level, no injurious effects have been known to result, and while not insisting that antipyretic treatment assists the course of any fever, there is on the other hand no evidence that it does harm. That it should be made use of when hyperpyrexia is present is scarcely contested; in other cases, in our opinion, it should be withheld if the temperature keeps within moderate limits—such limits depending on the disease, the date of the disease, and the individual affected; it is certain that in such cases no harm has been known to ensue if the treatment has been administered with discretion, and great relief from distressing sleeplessness, restlessness, etc., is obtained by the patient.—S. P.]

4. Treatment of typhoid fever by copious drinking of warm water.

Dr. Debove (*Soc. Méd. des Hôpitaux*, p. 688, July 31, 1890) relates that in 154 cases of typhoid he prescribed no drugs, but made the patients drink seven to eight pints of fluid each 24 hours; the urine of each patient is collected, and if the quantity is insufficient, he makes the patients drink more fluid. It is probable, he argues, that the poisonous substances in the blood in typhoid should be eliminated by the kidneys, and that diuresis therefore should be encouraged, and the increased urine when warm drinks are taken proves they have a diuretic effect.

[The results of these cases were fairly favourable, but 154 cases is an insufficient number to judge from, and free diuresis may be produced without eliminating much beyond water.—S. P.]

5. Treatment of typhoid fever by hot enemata.

Dr. Theodor Geissler (*Pratch*, No. 22, 1890, and *Lond. Med. Rec.*, July 20, 1890) treated five patients by enemata of one pint of water at 108.5° F. He finds that hot enemata will lessen the number of stools where there is diarrhoea, and make them less mucoid; they also relieve constipation when that is present. The first effect of a hot enema is to cause a rise in the patient's temperature, but after an hour it falls again to, or below, its former level; the pulse frequently at first decreases but increases after an hour, and becomes firmer and fuller; respiration usually quickens, to become slower in an hour or so. The blood-pressure distinctly rises, and the daily flow of urine is increased. As a rule the injections are retained 20 to 30 minutes, and they are usually grateful to the patient.

6. Absolute rest and starvation in early stage of typhoid fever.

Dr. E. F. Licorish (*New York Med. Journ.*, March 8, 1890, p. 268) lays down that our aim should be in treating typhoid fever: (1) to maintain the heart's strength; (2) to re-establish the appetite; (3) to maintain general quietude; (4) thorough ventilation. To maintain the heart's strength he relies upon absolute rest in the horizontal position till the crisis is past and convalescence re-established. The importance of this absolute rest is soon shown on the heart, which maintains its strength and regularity. Dr. Licorish's second aim is to restore the appetite. He instructs the nurse not to give any nourishment to the patient till he calls for it, but to give water whenever required; sometimes about 4 oz. of milk are allowed till the appetite returns, which is usually about the fourth or sixth day. This treatment is only recommended in the early stage, i.e., before the heart has become weakened by the fever, and only in those who retain the horizontal position. Dr. Licorish claims that typhoid fever may be aborted if the treatment be begun within the first few days of its initial onset, such treatment to consist in restoring the appetite by depriving the patient of food till nature (i.e., the patient) demands it, and the maintenance of the horizontal position, which enables us to starve the patient without risk.

[With regard to keeping the patient horizontal, this is a part of the treatment generally adopted in Great Britain, but it cannot be said that it is always sufficient to prevent enfeeblement of heart action in cases of typhoid. No doubt starving the patient is an efficacious way of "restoring the appetite," but the patient may materially suffer during the process.—S. P.]

7. Treatment of typhoid by intestinal antiseptics.

Dr. Teissier, of Lyons, recommends the following treatment (*Lyon Medical*, Sept. 7, 1890, p. 20):—(1) Every morning and evening 6 grains of a naphthol with some salicylate of bismuth; (2) four cold enemas every twenty-four hours, for encouraging diuresis; (3) after the enema in the afternoon, an enema of 60 grains of extract of quinine, and 1 to 9 grains of quinine sulphate dissolved in infusion of valerian, as a tonic; (4) a diet of milk bouillon and Bordeaux wine. The author adopted this treatment in fifteen consecutive cases of typhoid fever, some exceptionally severe; death occurred in only one case, in which there was suppuration in the kidney. In nearly all the cases, as soon as antiseptics was obtained—that is, as soon as the urine got quite green—the temperature fell gradually, albuminuria disappeared, the spleen lost its abnormal size, and the tongue became moist. There succeeded to the regular fall a period of wide oscillations in temperature for four to eight days; then convalescence began, and was very short and favourable in its course.

8. Hydronaphthol in the treatment of enteric fever.

Dr. W. Michell Clarke (*Practitioner*, July, 1890) writes:—"The object of producing intestinal antiseptics is to check fermentation, by charging the medium with some body that renders development of organisms difficult or impossible. This end is best accomplished by a substance which is antiseptic and also insoluble, so as to pass through the alimentary canal unchanged, exerting the antiseptic action at every part of it, and, at the same time, be unabsorbable into the blood, or harmless if it is absorbed." From various experiments on the digestion of milk and of egg made outside the body, and on the effect of hydronaphthol on these processes, Dr. Clarke found that hydronaphthol had a very distinct retarding influence on digestion of egg albumen by peptic fluid, had a very slight effect on the digestion of milk by the same, and had no effect at all on pancreatic digestion of milk or albumen, nor on the conversion of starch into sugar. Consequently it was concluded that to most patients, on milk diet only, hydronaphthol may be given without interfering with digestion; and where it does produce sickness, this is probably due to retardation of peptic digestion, which might be avoided by giving the hydronaphthol in pill form, coated with keratin. As to the dose, 2 to 3 grains every two hours is sufficient; if there is diarrhoea after the first three to six doses, it may be given every three or four hours. For children under one year the dose is $\frac{1}{2}$ grain. Five cases, of which two were severe and prolonged, were treated by

hydronephthol, and did well, diarrhoea stopping when it was previously severe.

9. Phenacetin in typhoid fever.

M. A. Sommer (*Bulletin de Thérap.*, Sept. 25, p. 282) confirms the conclusions arrived at by Masius and Gueisslea on the action of phenacetin. He gave it in doses of 6 grains to adults and 2 grains to children, repeated two, three, or four times daily, in sixty typhoid cases. One death only occurred, and this patient was not subjected to the treatment of phenacetin till three weeks after the beginning of the illness. A fall in temperature was produced of from 1.8° to 3.6° F. in about three hours. The temperature seldom rises again; but when it does so, it can be again depressed by a second dose. Sleep usually comes on at the same time. The author never met with any unfavourable symptoms after administering phenacetin, and finds that under its influence the course of the fever becomes more mild.

10. Treatment of enteric fever by acetanilide.

In the *Practitioner*, Jan., 1890, p. 14, Dr. W. Peirce, of Sydney, advises continuous administration of the drug whenever the temperature exceeds a certain point— 101° or 103° —according to the case. "Under this treatment the tongue becomes moist, the vaso-motor nervous system is gently stimulated, free perspiration ensues, and peripheral anæsthesia is produced, associated with a feeling of ease and pleasure, which surprises and delights the patient."

"By continuing the treatment throughout the disease, asthenic delirium is averted, assimilation and nutrition are improved, and organic degeneration, bed-sores, and exhausting suppuration, are generally prevented; and, by warding off or subduing the urgent symptoms of sleeplessness, delirium, headache, etc., and by slowing the pulse and respiration, and increasing arterial tension, the patient's strength is remarkably economised, and his prospect of ultimate recovery proportionately influenced. This treatment is less likely to give rise to collapse, intestinal congestion, etc., than cold bathing; and it neither worries, pains, nor alarms patients."

Dr. Peirce claims "that pneumonia, as a complication of enteric fever, is prevented by early and continued acetanilide treatment, partly because the evolution of secondary lung affections aborts under the antipyretic influence of the drug. In failure of the heart during enteric fever, whether associated with organic softening or not, and especially when the heart endeavours to compensate for feebleness by increased rapidity of action, a condition will be found to exist which can be effectively modified or permanently resolved by the action of acetanilide."

And he declaims against the use of alcohol in such cases, except to tide over the crisis, and writes, "It is vain to expect, from the transitory action of an alcoholic stimulant, sufficient protection against a condition which is dependent on the same law of periodicity as the essential disease to which it owes its origin."

Dr. Peirce finds the salutary influence of acetanilide appears most decided in the early stage of the disease. In insidious cases, in which deep ulceration may co-exist with slight febrile disturbance, he thinks acetanilide should be used for its "valuable stimulative and soothing properties."

Dr. Peirce also finds that "the depressed temperature rises with the suddenness of a released spring as the effect of the acetanilide is passing off." Dr. Peirce's practice is to check each rise boldly by another dose of the drug. He admits, however, "if acetanilide be given frequently, so as to keep constantly at normal rate a temperature which inclines to oscillate, say about 104°, a very undesirable action is apt to be produced, the long duration of his cases suggesting to him that possibly the suppression of the temperature retarded a salutary elimination by heat of the febrile materies morbi."

Dr. Peirce calls attention again to another unfavourable result of antifebrin administration, namely, cyanosis and rigors; and rightly remarks that "extreme caution must be used in its administration where a tendency to internal hæmorrhage exists."

[It will be seen, therefore, that Dr. Peirce's eulogies of the drug are considerably discounted by the statement that the action of acetanilide is very evanescent; that there is frequently shown a great tendency to the re-rise of temperature, after its depression, to a point higher than ever; that its continued and frequent administration is injurious; that it is dangerous in cases where there is a tendency to hæmorrhage; and that it often gives rise to rigors and cyanosis. These points were laid stress upon in the "Year-Book" for 1888, and in our opinion acetanilide, being a rapidly-acting antipyretic, is very useful for the definite purpose of reducing temperature if this is unusually high; but its continued routine administration is not advisable, and doses of 3 grains are often quite sufficient to produce the required effect. Where there is much cyanosis, and where the type of fever is malignant, antifebrin is dangerous.—S. P.]

II. Comparison of methods of treatment in typhoid fever.

A committee elected to inquire into the results of the relative value of the different methods of treatment in typhoid fever report in the *Journal of the Société des Hôpitaux de Paris*,

p. 628, July 10, 1890 ; but though the report is long, the results are small, except in pointing out the difficulties to be encountered in such an investigation. They report a very satisfactory gradual decrease in the mortality since 1866, when it was estimated at 17 to 19 per cent. ; in 1888 it had decreased to about 13 or 14 per cent. They also report that the systematic treatment by cold baths has given slightly better results than mere symptomatic treatment.

12. Ehrlich's test for the urine in typhoid fever.

Ehrlich's test depends on the production of a pink froth when the urine of a typhoid patient is treated with his solutions. These test solutions are (1) acid hydrochloric pure 1 part, distilled water 20 parts, sulphonic acid to saturation. (2) The second solution consists of a $\frac{1}{2}$ per cent. solution of nitrate of sodium in distilled water. The test consists in adding to a specimen of the urine an equal volume of fluid made up of the two solutions in the proportion of 25 parts of the sulphonic solution to 1 part of the nitrate of sodium solution, and then adding strong liquor ammonia sufficient to alkalise the solution. In cases of typhoid fever the fluid becomes of a deep ruby-red colour, and on shaking the test-tube a delicate pink froth occurs, which is characteristic, for in urine in most other conditions this is not produced. It is not claimed that this pink froth is produced in typhoid fever only, for it is found in albuminous urine frequently, also in measles sometimes, and in other febrile states. It is claimed, however, that the test can be obtained in the urine of all patients suffering from typhoid fever, and if absent typhoid can be excluded.

Dr. Howard Taylor (*Lancet*, May 4, 1889) found that in most cases the test is obtainable from the period of first rise in temperature in typhoid cases, but in other cases not till the end of the first week.

Dr. Tatham (*Practitioner*, September, 1890, p. 237) also found the test a reliable one.

[I have found the test succeed in all of several cases of typhoid in which I have tried it, but its usefulness is diminished as a diagnostic sign by its being obtainable in other pyrexial states.—S. P.]

13. Treatment of scarlet fever.

Professor V. Ziemssen (*Jahrbuch klinische Vorträge*, No. 14) recommends tepid and cold baths and cold affusions in the same way as in typhoid fever. When the patients have passed into an adynamic condition tepid baths and stimulants are especially indicated, and in such cases cold affusions must never be resorted to. Antipyretic drugs, though useful in some cases, he regards

only as of secondary use. When the tonsils become the seat of diphtheria-like deposit, the author removes the membrane by forceps, and swabs the surface freely with a solution of carbolic acid (1 in 10 to 1 in 2 parts); gargles he regards as quite useless in separation of membrane. In very grave cases injections of carbolic acid may be made into the substance of the tonsils, and into the palate or uvula. As to infiltration of the lymphatic glands and the cellular tissue of the neck, the author believes treatment to be of little avail, but if there is fluctuation incisions should be made early. Coryza and otitis media should be treated with much caution, the latter by early incision of the membrana tympani. For nephritis, in grave cases Ziemssen recommends warm baths, followed by the enveloping of the body in flannel or wool. The bath should be gradually heated while the patient is in it by adding hot water from time to time, and each bath should last half to one hour, and the subsequent wrapping in flannel for one to two hours. If the nephritis is less acute vapour baths are better than hot-water baths. Often the hot bath will only produce perspiration after being several times repeated. Besides the baths, pilocarpine, alkaline waters, and wines rich in carbonic acid (champagne) may be administered, and what is of greatest importance, milk. Amongst other drugs liquor ammoniæ acetatis and acetate of potash are of the greatest service.

14. Treatment of scarlet fever by eucalyptus oil.

Dr. Curgeavea (*Brit. Med. Journ.*, October 26, 1889) speaks highly of results obtained in scarlet fever by eucalyptus oil, which is an antiseptic that possesses the advantage of being inoffensive and powerful while readily volatilised. The method recommended is to administer the oil internally in 1- to 4-drop doses every four hours in an emulsion, as it is then more easily diffused through the menstruum. The eucalyptus oil is also to be freely diffused throughout the room by sprays, or by evaporating it on a hot fire-shovel, and the patient is to be rubbed all over the body with the oil, not allowing any part of the skin to escape.

15. Acetate of ammonia in scarlet fever.

Dr. Vidal (*Bulletin de Thérap.*, Oct. 25, 1890) cites certain observations showing the efficacy of acetate of ammonia in large doses in the treatment of scarlet fever. The acetate is well borne in doses as large as 15 grains for each year of age of the patient up to a minimum of 500 grains; more than this has never been given. Dr. Vidal believes that by such doses the temperature is rapidly lowered, and that the treatment is a valuable one in

scarlet and other infectious fevers ; its action appeared to Dr. Vidal most effective when the treatment was commenced almost at the beginning of the attack.

[A similar claim was made 25 years ago for carbonate of ammonia, but experience of it did not confirm its value.—S. P.]

16. Sulphite of soda in scarlet fever.

Dr. T. A. Elder (*New York Med. Jour.*, March 29, 1890, p. 347) has tested the statement of Tyrell that sulphite of soda is effective in the sore throats of scarlet fever cases ; he found that in many cases the severity was lessened, and in some the disease was averted by its use. In all the cases the drug appeared to shorten the duration of the disease and to lessen the probability of sequelæ. In no case did any renal disease follow. Sulphite of soda appears to increase the action of the skin and to diminish the amount of desquamation, which becomes limited to parts where the epidermis is thick—such as the fingers and toes. In some cases diarrhœa was set up by the sodic sulphite and it did not reduce the temperature, but even then it appeared to Dr. Elder to exercise a beneficial action. Rapid and safe convalescence seems to follow the use of the sulphite, and it appears to prevent the troublesome adenitis which complicates many cases. It should be given in solution in doses of 30 to 45 grains in each 24 hours.

[The author gives full notes of the cases, twelve in number, on which his observations were made, of which two were severe and two very bad cases. None died, but the number is too small to give any opinion upon the treatment till further tried.—S. P.]

17. Phenacetin in measles.

Dr. Waugh (*Times and Register*, Philadelphia, May 17, 1890) gave one and a half grains of phenacetin every two hours to a child under four years of age with signs of measles contracted from her elder sister. The temperature fell and the child appeared quite well on the following day ; the next day after this the fever returned, with cough, and the temperature again fell after the drug was given and the child had no further symptoms. Another sister aged six next showed signs of measles, but the disease was cut short and no symptoms occurred after the phenacetin was given to her. The author, without asserting that phenacetin can abort measles on the strength of these two cases, suggests that the treatment shall be tried on a larger scale.

18. Treatment of malignant measles by cold baths.

M. Dieulafoy (*Bulletin de Thérap.*, July 8, 1890, p. 200) relates the case of a girl who on the sixth day of an attack of measles had pyrexia, a pulse of 130 to 140 per minute, dry tongue, and delirium, with lessened urine. On the eighth day the temperature

was 104°, the pulse irregular and intermittent, and the heart failing; urine suppressed; no visceral complication. A bath at 75° F. was prescribed, which, notwithstanding that it produced a severe rigor, brought the pulse-rate down to 120 to 130, reduced the temperature slightly, and gave an hour and a half of refreshing sleep. Other baths were given with intervals of three hours, and on the eleventh day the patient was convalescent.

19. Treatment of confluent small-pox.

Mr. Lauwentanner (*Bulletin Thérap.*, p. 218, 1890) claims to have secured the recovery of six children suffering from confluent small-pox by smearing the face and neck with a paste of starch and almond oil, with the addition of 3 per cent. of salicylic or carbolic acid. The face is covered over with a mask, and the whole body is washed with a mixture of glycerine, amidon, and salicylic acid. No scarring is left after the separation of the scabs, and no suppurative fever occurs, and the course of the disease is shortened. Every quarter of an hour or half-hour he gives internally a mixture of quinine chlorhydrate, hydrochloric acid, laurel-flower water, almond oil, and syrup of orange.

[It seems difficult to admit that mere administration of quinine and local application, as above described, can be credited with the cure of the six cases.]

20. Corrosive sublimate treatment of small-pox.

Talamon (*Revue Médicale*, Nov. 7, 1890, p. 329) recommends the use of corrosive sublimate (1 in 50) solution locally three or four times daily; the application should be made by spraying, and each application should be for one minute. In confluent or hæmorrhagic small-pox these sprayings are useless, but in moderately severe cases the vesicles are prevented from going on to suppuration, and even in severe cases the suppuration is made less severe. Talamon advises that a quarter of an hour after the spraying, the surface should be mopped with a glycerole of sublimate (1 in 15), and, in severe cases he also uses tepid baths, with 1 oz. of sublimate. He appears to consider that these local applications materially affect the mortality, for he states that before he tried this treatment he lost 18·9 per cent., and after it only 12·6 per cent. of the patients.

21. Systematic treatment of diphtheria.

This has been laid down as follows by M. J. Simon (*Mercure Médical*, April 30, 1890).

Locally spongings, pulverisations, gargles, and antiseptic irrigations; before the spongings are made the membrane should be removed by forceps, and then swabbed with acid. salicylic. gr. xv., alcohol q.s., glycerine 3i0, and Inf. eucalyptus 3i2.

These swabbings are to be repeated every hour, and after each an irrigation with boric acid, 2 per cent. solution. Gargles, except in young children, should be used of boric acid or coal-tar solution. Sprays several times daily of carbolic acid or thymol should be practised, especially in young children. For the swelling of the external glands a pomade should be used of

Extr. Belladonn.	...	...	...	...	...	3 grs.
Iod. Potass	...	...	...	...	...	2 grs.
Vaseline	...	...	...	...	...	3 drachms.

Internal treatment should be quinine, coca and kola, with alcohol and plenty of food, and internally 10 to 20 m. of tincture of perchloride of iron daily. If the child is older M. Simon prescribes cubebs, copaiba aa 1 drachm, subcarbonate of iron 4 grs.; subnitrate of bismuth 1 gr.; to make four doses, to be taken during the 24 hours. The bedchamber should be kept antiseptic by carbolic acid or turpentine.

22. Treatment of diphtheria by resorcin.

The recommendations of resorcin in diphtheria by Dr. de Callias and Dr. de Gassecourt were recorded in the "Year Book" for 1890, p. 142. In the *Revue Médicale*, Sept., 1890, p. 421, further testimony appears to its value as an antiseptic without irritating action or toxic effects. Mopping the pharyngeal mucous membrane every two hours during the night is recommended, and every hour during the day, with a solution of resorcin or glycerine (1 in 10), and at the same time the room should have diffused through it by pulverisation a solution of resorcin in water (1 in 20).

23. Treatment of diphtheria by sulphur.

Dr. Charles Smith (*Austr. Med. Journ.*, Dec. 15, 1890) recommends local application of sublimed sulphur. The affected areas are first to be swabbed over with a solution of glycerine of tannin, then to be treated by insufflation of the sublimed sulphur. For a quarter of an hour the patient should not swallow or expectorate. The process is to be repeated day and night every hour, and according to the author the diphtheria disappears in 48 hours.

24. Sulphur and quinine in diphtheria.

M. Burghart (*Prov. Med. Journ.*, 1890) recommends in the local treatment of diphtheria the employment of a powder of equal parts of flowers of sulphur and sulphate of quinine. It is to be brought into contact with the false membrane, and if this is in the pharynx the patient must not drink anything for an hour and a half. Prophylactic treatment consists in insufflation of the powder into the nasal fossæ, even when they are unaffected. Thirty cases thus treated all recovered, two applications of the

powder being made in each case daily. Internally perchloride of iron and nutritious food were prescribed.

25. Treatment of diphtheria by iodoform.

Dr. Lindley (*Boston Med. and Surg. Journ.*, cxxi., p. 40) suggests the daily insufflation of iodoform through the nose or mouth: the application must be made so that the membrane is completely covered with the crystals. He adopted this treatment in nine cases, of which eight recovered, and claims that iodoform not only checks bacterial multiplication, but is a soothing local anodyne, and has no toxic action on a diphtheritic patient.

26. Treatment of diphtheria by chloral hydrate.

Dr. C. J. Wilson (*Journ. Amer. Med. Assoc. and Lond. Med. Rec.*) highly recommends chloral hydrate in frequently repeated doses of 1 to 5 grains according to the patient's age, as having a marked sedative effect, controlling the inflammation in the throat and kidneys, and preventing the complications and sequelæ such as otitis media and glandular inflammation.

27. Treatment of diphtheria by inoculation of erysipelas.

Dr. Babschinsky (*Lond. Med. Rec.*, Sept. 20, 1890) observed three cases of severe diphtheria recover after spontaneous appearance of erysipelas. He therefore treated fourteen patients suffering from diphtheria by erysipelas microbes, which had been cultivated on agar-agar; the inoculations were performed by scarifications as for vaccination, and erysipelas showed itself in from four to twelve hours. As the erysipelatous process went on the membrane gradually disappeared from the fauces, the lymphatic swelling diminished, and the temperature fell. No other treatment was adopted, and the patients recovered, while other cases in the same families not so treated died. In two cases Dr. Babschinsky was unsuccessful, the patients dying before erysipelas had time to develop.

28. The study of diphtheria.

MM. Roux and Gerin, in the *Annales de L'Institut Pasteur*, write that to make an accurate diagnosis of diphtheria, it is sufficient to discover the bacillus of Klebs and Loeffler with the microscope; the false membrane is stained by gentian violet or by blue (Loeffler); they are never absent in diphtheria cases, and are readily distinguishable from other bacilli; but many other organisms will be found where the membrane has begun to become foetid, which may make it difficult to find the diphtheritic bacilli. The examination is done in a few minutes. When the disease is lessening, the bacilli are less numerous and the membrane gets thinner and less elastic, and an idea as to the prognosis may be formed, even at the outset, from the number of bacilli found in

the membrane. The bacillus is easily cultivated in blood serum. Messrs. Roux and Gersin examined membrane from eighty children in the diphtheria "pavilion," and found the bacillus in sixty-one cases; the other nineteen had no bacilli in the membrane, and the general condition of all these was less serious than that of the others, and they all recovered.

The research was important, because, amongst other things, it showed that there are other species of coccus that give rise to false membrane, and there is therefore more than one disease characterised by false membrane being deposited. Another fact is important—the mouths and tonsils of the patients were found to contain the true bacilli for some days, in some cases as many as fourteen days after the disappearance of the false membrane, whence it is inferred that isolation should be prolonged at least for this time. The bacillus of diphtheria can live a long time out of the body. A dried paper containing bacilli gave cultures after being kept five months, and the importance from the point of view of infection in clothes is dwelt upon. It was found, however, that sunlight and moisture destroyed the bacillus.

29. Treatment of whooping-cough by bromoform.

(*Therap. Gaz.*, Oct., 1890, p. 594).—Bromoform is a colourless liquid (CHBr_3) produced by the action of bromine upon alcohol in the presence of an alkali. It acts as an anæsthetic, very much as does chloroform. Dr. Stepp, of Nuremberg, has used it with success in whooping-cough, and, more recently, Professor Senator has endorsed the treatment, noticing in some cases decided benefit as early as the second day of treatment. Vomiting ceased after a week of the bromoform treatment, and in from two to four weeks children were usually quite cured. Where the bromoform was not administered long enough, relapses occurred; and in one case too large a dose was given, and toxic effects resulted and were recovered from. The treatment is also highly spoken of by Dr. Louis Fischer, of New York.

For children under 1 year old, two or three drops should be given thrice daily; children of 2 to 4 years of age can take three or four drops three or four times a day; the remedy may be given in a small teaspoonful of water, and its taste is not unpleasant. If it turns brown it contains free bromine and should not be given.

30. Treatment of whooping-cough by chloroform.

Dr. Schelling (*Bulletin de Thérap.*, July 25, 1890) advises the following treatment:—In the receiver of a vapouriser is placed a tablespoonful of warm water, to which are added twice as many drops of chloroform as the child numbers years of life. The child

must then inhale the vapour, and as the quantity of liquid put in the vapouriser is small, the inhalation only lasts a brief time, but must be repeated daily four times. After eight days the attacks of coughing become less violent and less frequent; but if improvement is not effected by this time, the amount of chloroform must be increased from two to three drops for each year of the patient's life. The author claims to have had very favourable results.

31. Treatment of whooping-cough by eucalyptus.

Dr. W. Hardwicke (*Lancet*, Nov. 2, 1889) tried eucalyptus oil in preference to carbolic acid, as it has a germicidal action three times as strong as carbolic acid, without having the inconveniences of the latter. Combined with essence of turpentine, the mixture is of pleasant aromatic odour, exercises a sedative effect on the respiratory tract, and destroys the virus in the expectoration, thereby diminishing the risk of infection in other persons. His prescription is oil of eucalyptus and oil of turpentine, equal parts, with eight times the weight of each of rectified spirit. The inhalation should be made half an hour before each meal and before going to bed. Internally, the author gives oil of turpentine in drops with carbonate of magnesia and camphor. He claims rapid diminution of the violence of the cough and a cutting short of the disease.

32. Treatment of whooping-cough by resorcin.

The treatment suggested by Moncorvo and others of swabbing the larynx by resorcin has been mentioned in previous "Year-Books." In the *Therap. Gazette*, April 15, 1890, the experience of Dr. Farlow is recorded. When the convulsive stage of the disease was well marked he used 2 per cent. solutions of resorcin, *spraying* into the nose, larynx, and pharynx every two hours. On the first day there was no change of note, but on the next day the paroxysms became less frequent, and by the fourth day the cough disappeared. Spraying was kept up as a precaution, but there was no return of the cough. In a discussion at a meeting of the Boston Medical Society, the experience of others was given in favour of the treatment by resorcin.

33. Treatment of whooping-cough by sulphurous acid.

M. Bovry (*Union Médicale du Canada and Bulletin de Thérap.*, Oct. 25, 1890, p. 317) recommends the treatment originally suggested by McMohn. The child is removed from the room while the sulphur is burnt in it. The quantity of sulphur to be burnt should be about 6 drachms for every cubic metre of space

in the room; the windows and doors of the room should be securely fastened. After five or six hours the room is opened and aired for ten minutes; the child is then placed in the room to sleep there that night. There is at first a little coughing, which soon passes off. The fumigations are renewed for several successive days, and the whooping-cough ceases in 20 days at most, whilst in patients treated otherwise it lasts three or four months.

Dr. Dujardin-Beaumetz (*Bulletin de Thérap.*, April 30, 1890) also speaks in favourable terms of the effect of sulphur vapour on whooping-cough. He practises the treatment by submitting the children every morning and evening to a sulphur inhalation. He places the child in a small room, and burns one of Deschiens' No. 1 bougies, containing 150 grains of sulphur, each time. The children bear the treatment well, with only a slight irritation of the throat and eyes, and the course of the complaint he describes to be considerably relieved and shortened.

34. Treatment of whooping-cough by ouabaine.

W. Gemmell (*Brit. Med. Journ.*, April 26, 1890) writes that ouabaine is a crystalline alkaloid, $C_{20}H_{40}O_{12}$, obtained from the roots of a plant from East Africa, the juice of which is used as an arrow-poison. Ouabaine occurs in rectangular crystals, dissolving with difficulty in cold but more readily in hot water; it is insoluble in chloroform or ether, and its best solvent is partly concentrated alcohol. Its physiological action has been investigated by Prof. Grey, who finds it to be anæsthetic, and to have a powerful effect in slowing the respirations.

Dr. Gemmell made careful observations on 49 cases of whooping-cough, and found it to be of marked benefit in all its stages. In the first stage it cuts short the attack; in the second it reduces the violence and frequency of the cough and diminishes the number of whoops; and in the third stage it hastens convalescence.

Ouabaine should be given in doses not larger than $\frac{1}{1000}$ gr every three hours; for children under one year of age the dose must not exceed $\frac{1}{2000}$ gr. every three hours; in children of six to twelve years of age, if the cough be very violent and the whoops numerous, $\frac{1}{800}$ gr. may be given for each dose, the action of the drug being carefully watched.

Ouabaine may be given alone dissolved in water or in combination with chloral or bromides. The simplest way is to dissolve one grain of ouabaine in distilled water, so that each minim of the solution shall contain $\frac{1}{1000}$ gr. ouabaine. Ouabaine seems to promote the action of the skin, and patients perspire freely while taking the drug; the quantity of urine is also increased (in some cases glycosuria resulted); the pulse, respiration,

and temperature always fell ; if the drug is pushed respiration may become dangerously slow ; the pulse may become irregular, but this appears not to be dangerous.

35. Books of the year.

"The Natural History of Specific Diseases," by E. F. Willoughby, M.D. London : H. K. Lewis, 1890.

"History and Pathology of Vaccination," by Professor E. M. Crookshank. Two vols. London : H. K. Lewis, 1889.

"The Pyrexia of the Specific Fever," with special reference to daily fluctuations of temperature, by A. K. Chalmers, *Glasgow Med. Journ.*, July, 1890.

"Typhoid Fever and Tropical Life," by J. Marston.

"Errors in the Diagnosis of Infectious Diseases," by J. B. Russell, *Glasgow Med. Journ.*, July, 1890.

GENERAL SURGERY.

BY STANLEY BOYD, B.S. Lond., F.R.C.S.,

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1. New instruments and new modes of operating.

Münchmeyer's transfusion apparatus consists of an aspirator needle, to be disinfected by a spirit-lamp flame, a piece of rubber tubing, and a large funnel. An antiseptic solution is first run through; then normal saline solution (NaCl . 3j ad Oj) is injected into the subcutaneous tissue by gravity. Massage diffuses it, and flow can be accelerated by running a finger and thumb down the outside of the tube. The results are said to be as good as those of intra-venous injection of saline solution. The value of this is doubtful, as Schäfer seems to have shown that death from hæmorrhage is generally due to loss of red corpuscles. Nevertheless, Littlewood (*Leeds and W. Riding Med. Chir. Soc.*, Oct. 18, 1889) reported cases in which intra-venous transfusion of saline with Aveling's apparatus seemed to have saved life in cases of hæmorrhage, whilst no bad results had followed from the operation—a remark which does not extend to the transfusion even of defibrinated blood. The method is evidently worthy of further trial, and the ease with which it can be carried out is a great recommendation.

Drainage tubes of arteries were shown at the International Congress by Mr. Weeks (London), and recommended as being easily absorbable. (*New York Med. Record*, Aug. 30, 1890.)

Trendelenburg's tampon tube.—Loboschinsky and Co., of Jena, make the balloon out of much tougher rubber and stick it to the tube where formerly it was tied, thus avoiding a projection. They provide the instrument with Rosenbach's valve, which indicates constantly whether or not the trachea is completely plugged, i.e., whether blood can trickle past.

Trendelenburg's new position (with raised pelvis) for abdominal section.—Some time back Prof. Trendelenburg announced that he performed supra-pubic lithotomy, operations on vesico-vaginal

fistulae through the bladder, and abdominal sections for pelvic growths, &c., whilst the patient's pelvis was raised considerably from the table by an assistant, who took the patient's knees upon his shoulders and stood below the foot of the table. The advantages claimed are that the intestines gravitate towards the diaphragm, and do not tend to prolapse; that the lighting of and view into the pelvis are greatly improved; and that intra-pelvic pedicles become more easily accessible. Various Continental surgeons have adopted this position, and state that it certainly enables them to operate more quickly. Narcosis is said to be as easy as in more ordinary positions.

McGill showed a case of vesico-vaginal fistula closed by Trendelenburg's supra-pubic operation. (*Leeds and W. Riding Med. Chir. Soc.*, Feb. 7, 1890.)

Trendelenburg's operating table, constructed primarily to allow of the patient's being placed in the above position.—This table seems from the description and woodcuts to be a very excellent one. The patient's position can be rapidly varied from the sitting posture, through the horizontal position, into that with the pelvis raised; the height of the table can be varied at will, and it turns easily round a vertical axis. It is made by Eschbaum, of Bonn, and was shown at the annual meeting (1890) of the Association of German Surgeons. (*Centbl. f. Chir.*, No. 25, Illustrations.) Price 350 marks=£17 10s.

Subcuticular Suture.—Kendal Franks (*Brit. Med. Journ.*, Feb. 22, 1890) draws attention to the cosmetic value of this suture, which he seems to have re-discovered. H. O. Marcey (Boston) writes (*Ibid.*, Mar. 29) that for years he has used this suture for all wounds, no matter how large; he seals the wound with iodoform collodion and a few cotton fibres. No other dressing is necessary, there are no stitches to remove, and "stitch-abscess" never follows. The latter point is the chief advantage looked for by most of those who use this stitch, for they think that stitch-abscess is probably due to infection from the epidermis and skin-glands traversed by the ordinary stitch. There can, however, be little doubt but that inflammation round stitches is often due to infection from the stitch itself. Franks uses a fine, fully-curved Hagedorn's needle and very fine catgut. The needle is passed from the cut edge into the cutis vera beneath the epidermis, and out again $\frac{1}{4}$ in. away on the same cut edge; then across the wound into the other cut edge at a point opposite that from which it emerged.

A simple way of laying bare the ankle-joint.—Lauenstein (*Centbl. f. Chir.*, No. 25, 1890).—With foot on inner side, cut on

to the fibula, where it becomes subcutaneous, straight down over malleolus, and from its point curve openly forwards over extensor brev. dig. origin to the level of the astragalo-navicular joint, ending external to the peroneus tertius. Raise the soft parts from the front and back of the lower end of the tibia, opening the joint and detaching the ant. and post. ligaments from the tibia. Divide the three bands of the external lateral ligament, or, if preferred, chisel through the malleolus and turn it down. Now seize the foot, extend it, and invert strongly. The astragalus can be rolled out of its arch, and the foot will, without damage to the internal malleolus or internal lateral ligament, lie, sole up, on the inner side of the leg-bones; all parts of bones and capsule are freely accessible, and infections of tendon-sheaths can be followed.

The same operation is applicable to the *astragalo-calcaneal joint*. Separate muscles back and front; do not open ankle, but divide the middle band of the external lateral ligament. Pass a knife into posterior part of joint, divide the interosseous ligament, and open the astragalo-navicular joint. With some force, after free division of the interosseous ligament, the foot may be dislocated inwards.

Excision of the astragalus is easily performed by a few snips with scissors, after the foot is dislocated inwards from beneath it.

Hüter's Excision of the Ankle.—At the *Sheffield Med. Chir. Soc.*, March 30, 1890, *Sinclair White* showed a girl of three on whom he had performed this operation seven months earlier for strumous disease of twelve months' duration. With laced boots patient was able to walk almost perfectly. This operation is very rarely done in England, though it seems a very good one. An incision is made across front of ankle, dividing everything from malleolus to malleolus, the joint is thoroughly opened, all disease removed, the divided parts sutured, and wound closed. Access to the joint is perfect.

Operation for retro-pharyngeal sarcoma.—*Dr. W. Cheever* (*Boston Med. Jour.*, cxvii, p. 515) performed, for a sarcoma the size of half a lemon, pushing the tonsil and soft palate forwards, an operation very like that originally proposed by Guthrie for ligature of the internal carotid at the injured spot in cases of wound through the mouth. Cheever turned up a flap, exposing the posterior two-thirds of the digastric triangle, turned the parotid up and the submaxillary down, tied and cut the external jugular and the facial vessels, cut the mylohyoid, passed wires through the body and ramus of jaw and cut between them, cut the superior constrictor from jaw, raised the latter, and found a cystic

sarcoma between the pharynx and pre-vertebral fascia. The wound healed well, but there was slight necrosis of the jaw. The method is worth bearing in mind as enabling the surgeon to reach this region.

Operation for fibro-myxoma of soft palate.—Krause (*Centbl. f. Chir.*, No. 25, 1890).—The tumour was so large (after removal $9 \times 7 \times 5$ cm.) that operation by the mouth seemed impossible. The trachea was opened and a tampon-canula inserted, the symphysis menti was sawn through and the tongue and floor of the mouth split to the hyoid. The soft parts had healed in four weeks and the stitch in the jaw was removed in the eighth week, sound union having occurred.

Temporary resection of the skull.—Lauenstein (*Centbl. f. Chir.*, No. 25, 1890).—Last year Wagner (Königshütte) suggested the use of an Ω (omega) incision in the scalp, followed by chiselling through the skull in the line of the incision, the base of the bony disc to be divided with a fine chisel run beneath the soft parts from the "legs" of the omega, and finally fractured. Lauenstein used the method in an exploratory operation, found nothing, laid down the flap of bone and soft parts, and it healed well. He did not find the "legs" of the omega necessary.

Gastrostomy.—Hahn's method (*Centbl. f. Chir.*, March 15, 1890). Open abdomen in L. linea semilunaris, find stomach, open inner end of eighth L. intercostal space through origin of diaphragm (no danger to pleura), fix stomach here by serous stitches and close abdominal wound; open stomach on 3rd day. You thus get nearer cardia, which tends to prevent escape of contents; the ribs act like a pinch-cock and prevent widening of fistula. Hahn passes a Nélaton's catheter for each feeding and closes wound with a pad between.

2. Anæsthetics.

The results of a great deal of experimental work have been published during the year ending Sept., 1890.

SECOND HYDERABAD CHLOROFORM COMMISSION (*Lancet*, Jan. 18, 1890).—*Address to the Medical Society of London on the results obtained by the Hyderabad Commission, by Lauder Brunton* (*Brit. Med. Journ.*, Feb. 15, 1890).—"The object of this Commission was to endeavour once more to decide the question how chloroform kills. The Edinburgh view is that it paralyzes respiration but affects the heart little or not at all; further, that some deaths are due to shock, insufficient chloroform having been given. In London it is believed that the heart is chiefly affected. The first Hyderabad Commission confirmed the Edinburgh view, 141 animals being chloroformed to death and respiration ceasing in all before the heart. In the second Commission 430 pariah dogs

were used, and respiration invariably failed before the heart. The action of ether was tested side by side with that of chloroform, and the drugs were given by inhalation, by injection into the veins, and by injection into the trachea. Simultaneous tracings of the pulse and respiration were taken and will be published by the Nizam. Experiments on the effect of *shock* (blows on testes, abdomen, etc.) gave no satisfactory result. The *upright position* caused fall of blood-pressure, which was restored by recumbency and increased by raising the feet. The effect of *constriction of the thorax and abdomen* was marked, two animals dying very quickly. The effect of *fatty degeneration of the heart*, produced by the previous administration of phosphorus, was not very marked; perhaps the heart stopped sooner after respiration. The most important conclusions arrived at were:—That chloroform and ether act in the same way, i.e., both paralyse the respiratory centre before the heart, but chloroform will do either one or the other more quickly than ether, than which it is much more potent. The cessation of respiration protects the heart to a considerable extent from the further action of the drug, but if, after respiration has ceased, more of the drug is driven in by artificial respiration, the heart is soon paralysed. Further, it was found that if plenty of air was not given with chloroform, so that asphyxia supervened with ordinary narcosis, the animal might make one or two final gasps and take in a lot of chloroform—perhaps sufficient to stop the heart. The *greatest risk to the heart arises from chloroform plus asphyxia*, the effects of asphyxia having been attributed to chloroform. The Chloroform Committee of the Brit. Med. Assoc. (*Journ.*, vol. i., 1879, and vol. ii., 1880) give a tracing showing a sudden fall of blood-pressure with slow action of the pulse, which they attributed to an occasional capricious action of chloroform on the heart. This tracing the Hyderabad Commission never obtained from chloroform alone, but they could produce it at will by adding asphyxia."

Dr. Brunton concludes that chloroform deaths are deaths from asphyxia and are due to imperfect observation of respiration; he repeats Sir J. Lister's advice—"Attend to the breathing." The breathing alone can be watched more closely than breathing and pulse, and if failure of the pulse is waited for, life-saving measures are apt to be too late.

In the discussion upon this address, there was a general protest from anæsthetists that *in man* chloroform caused failure of the pulse before failure of respiration, that ether was much safer, that there was no asphyxia with proper etherisation, and that you could not argue from animals to man.

Remarks on the Report of the second Hyderabad Chloroform Commission, by the Committee of the Brit. Med. Association (Journ., June 14, 1890).—Having carefully examined the tracings of the Hyderabad Commission, and compared them with their own, the Committee point out that it is stated in the Report of the Hyderabad Commission that chloroform “causes a gradual fall in the mean blood-pressure. . . . As this fall continues the animal first becomes insensible, then the respiration gradually ceases, and, lastly, the heart stops.” Their own tracings support this statement; and show, also, that when chloroform is pushed, the depression is apt to become what the Hyderabad Commission admit to be “dangerous.” They therefore think that all the tracings show that chloroform when pushed has a disastrous effect upon the heart as well as on the respiration; and that they further show that, when respiration has ceased, the heart has virtually ceased to act as regards its ability to carry on the circulation. The Committee are inclined to believe that failure of the circulation leads to malnutrition of the respiratory centre, and thus to cessation of respiration. Nevertheless they agree: (1) That death from chloroform occurs by failure of respiration, and that this is probably the most frequent mode of death. (2) That the normal effect of chloroform is to cause a gradual fall of blood-pressure. (3) That when chloroform is pushed this fall may become dangerous. This the Hyderabad Commission note as specially likely to happen from the gasping respiration which succeeds involuntary holding of the breath. (4) In addition to this “normal” effect of chloroform, both the Commission and the Committee observed peculiarly sudden, unexpected falls of blood-pressure with slowing of the heart. The Hyderabad Commission ascribe it to asphyxia. The Committee contend that neither in the time of its occurrence after holding the breath, nor in its general characters, does it correspond with the fall of pressure due to asphyxia. Whatever be the explanation, the occurrence is in itself sufficiently serious, and should not be minimised as forming one of the sources of danger in the administration of chloroform. The Committee sometimes noticed this same fall with ethidene, but never with ether.

An address on anaesthesia, by H. C. Wood, M.D., of Philadelphia, International Congress (Brit. Med. Journ., August 16, 1890).—A most valuable address, which should be read in its entirety by all who administer anaesthetics. Wood early points out that the functions affected by chloroform and ether, viz., respiration and circulation, are very similar in all animals, and that it is probably safe to reason concerning them from the dog to man. With

regard to chloroform and ether, there was concord between the experimental and clinical evidence concerning the way in which these substances produce death. But the Hyderabad Commission having adduced experimental evidence challenging the truth of the teaching with regard to chloroform, Wood made a careful re-study of the whole subject. He concludes that: (1) Anæsthesia is attended with appreciable risk, and no care will prevent occasional death. (2) Chloroform acts more promptly and powerfully than ether both on the heart and respiration. (3) Chloroform is much more permanent. (4) Chloroform may kill: (i.) by arresting respiration; (ii.) by stopping the heart; (iii.) commonly, by stopping respiration and heart about the same time. (5)

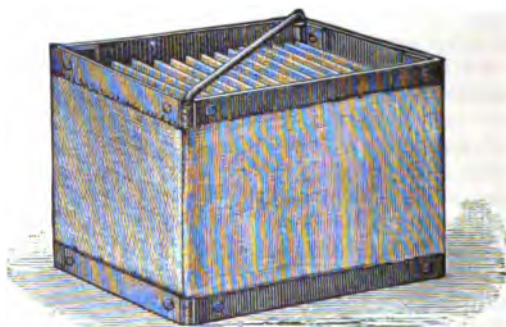


Fig. 1.—ALLIS'S INHALER.

Ether acts much more powerfully on respiration than upon the heart; but in large doses it is a cardiac depressant, and occasionally, especially when the heart is feeble, it may stop the heart before respiration. [Wood recommends Allis's inhaler (Fig. 1) for the administration of ether and avoidance of asphyxia.] (6) Chloroform is three to five times more fatal than ether—partly because it is less volatile and less easy to get rid of.

Wood claims that his tracings showing the fatal action of chloroform upon the heart are as correct records as those of the Hyderabad Commission; it is therefore necessary to seek for the cause of the difference. He suggests that the surroundings of the pariah dog render his heart less sensitive to chloroform than those of the dog of northern climates. Also, a difference in mortality from chloroform in hot and cold countries seems to have been established: thus, Sir Joseph Fayrer knows of no death from chloroform in India, though its use is universal, and

Dr. Langdon Edwards states that the high mortality from chloroform and ether in Europe and the North (of America), and the low mortality in the South, is one of the most peculiar effects he has known in medical practice. It is suggested that the greater volatility of chloroform at the higher temperature leads to its administration more dilute and to its more rapid elimination. (This would hardly account for the difference in mortality, if it is real, in Scotland and in England.)

Perhaps the most important part of the address gives the results of Wood's inquiry into the *effect of the more important remedies for arresting death from chloroform*. Nitrate of amyl, caffeine, and atropine, had little or no effect. The injection of ether was harmful, and, when ether was the anæsthetic, comparable to keeping the sponge saturated with ether in front of the dying patient's nose. Alcohol assisted in paralysing the heart and causing death. Ammonia sometimes transitorily raised the blood-pressure; again had no effect. Injections of tincture of digitalis had the strongest effect, causing steady rise of arterial pressure, with increased size of pulse. Death was several times apparently averted by it, and once or twice, large amounts having been used, the heart was arrested in systole. Strychnine usually caused rise of arterial pressure, and always marked increase in rate and depth of respiration. Elevation of the limbs without lowering the head, thus increasing the pressure in the heart, distends and momentarily stimulates it: the limbs should therefore be *alternately raised and depressed*. Lowering the head lessens the pressure in the right heart, and the increased pressure in the brain does no good. Forced inspiration was the best remedy of all. A dog, in which breathing and pulse had ceased for two minutes, was resuscitated by artificial respiration. The best apparatus consists of a face-mask, a few feet of rubber tubing, a pair of bellows, and two sizes of intubation tubes (ordinarily not required). The apparatus can be used by unskilled people, and may be of value in narcotic poisoning. To recover from chloroform poisoning: (1) Avoid all drugs except strychnine, digitalis, and ammonia; give these hypodermically. (2) Raise the patient's limbs briefly and temporarily. (3) Draw out the tongue by a thread through it, raise the angle of the jaw, and see that respiration is not mechanically impeded. (4) Use forced respiration promptly: in protracted cases warmth to the surface, stimulation by the dry electric brush, &c. On no account give alcohol. Wood believes that the administration to patients with a weak heart of a full dose of digitalis before giving chloroform would greatly lessen the risk of cardiac syncope.

Ueber die tödtliche Nachwirkung des Chloroforms (Thiem and Fischer, *Deutsche med. Zeitung*, 1889, p. 1111).—The authors confirm the results of Nothnagel (1866) on rabbits, Ungar on various animals, and Strassmann on dogs, who asserted that fatty degeneration of the heart and other organs was produced by chloroform, and, to a less extent, by ether. Thiem and Fischer chloroformed dogs for two to three hours on several days in succession, and got the same results. They found also that chloroform is not eliminated so fast as is generally thought. It may be in the urine twelve days after administration. Therefore, *avoid repeated chloroforming at short intervals: in prolonged cases always give morphia hypodermically at the start. Use ether preferably.*

Les Anesthésiques, 1890.—Dastre, Professor of Physiology at the Sorbonne, thinks that the originally empirical method of using atropine and morphia hypodermically with chloroform now rests upon a physiological basis, and should be tried extensively. It has been used for ten years in laboratory, and for seven years in hospital-practice at Lyons, without an accident. The Lyons formula is—morph. hydroch. .10 grm., atrop. sulph. .005, aq. 10.0.

Ether v. Chloroform.—T. E. Comte (*Rev. Méd. de la Suisse Romande*, No. 2, 1890) concludes strongly in favour of ether; objects to the "intense method" of administration as unpleasant, if not dangerous: and objects to *narcotising with chloroform and going on with ether*, as 50 per cent. of the deaths from chloroform occur before the anæsthesia is complete.

Äther- und Chloroform-narkose (*Centbl. für Chir.*, No. 25, 1890).—Kappeler, at the Association of German Surgeons, maintained that chloroform still holds its place in Germany as the anæsthetic, and deservedly; but as he admitted that the advocates of ether were to be met by improving the methods of giving chloroform, the position of the latter does not seem too secure. He showed a new apparatus for giving chloroform in known quantity with air. Bruns (Tübingen) and Stelzner (Leipzig), from large experience, spoke strongly in favour of ether.

Chloroform v. Ether (*Brit. Med. Journ.*, Feb. 8, 1890).—Arthur Neve, F.R.C.S. Ed., on the other hand, writing from the Kashmir Mission Hospital, states he has never seen a death from chloroform in over 3,000 cases. The cases in which serious danger threatened might be counted on the fingers of one hand; in all it was a question of arrested respiration, not of heart affection, and artificial respiration soon banished anxiety.

Bromæthyl-narkose (*Corresp.-Blatt für Schweiz. Aerzte*, Nos. 4 and 5, 1890).—E. Hafer from 200 cases concludes that bromide of ethyl is no good for long operations, but that after fifteen seconds'

inhalation it produces analgesia without loss of consciousness, which lasts long enough for extraction of teeth and minor operations. There is neither preliminary excitement nor after-effect. **Dastre** (*Les Anesthésiques*) calls bromo-ethyl an excellent analgesic, but muscular relaxation is incomplete and slow, and free sweating and salivation are produced. **Thiem** (discussion on Kappeler's paper) says it induces hypnosis rather than narcosis; and if this state is not very shortly attained it must be given up, as further inhalation is dangerous to life. Several deaths seem to have occurred.

A method of administering etherised nitrous oxide (*Brit. Med. Journ.*, Jan. 18, 1890).—**Dr. Fred. Silk** describes a modified Clover's apparatus for giving etherised gas, which extends the average period of primary anæsthesia (30 seconds) of simple nitrous oxide to 47·6 seconds. The anæsthesia may be prolonged by removing the face-piece every three or four respirations and admitting a little air. Ordinarily there are no after-effects, but they soon appear if much ether is given.

Prevention of cocaine poisoning.—**Glück** (*New York Med. Record*) recommends the following formula: R. absolute phenol mii , cocain. hydroch. grs. x., aq. dest. 3j . The solution keeps an indefinite time, and can be diluted as required.

E. W. Parker (*Brit. Med. Journ.*, Aug. 30, 1890) uses resorcin (one of the phenol series) with cocaine (proportion not given). It is antiseptic, hæmostatic, and appears to heighten the effect of the cocaine. He has not seen poisoning from this solution, but has from cocaine alone.

The value of controlling the circulation is obvious, and it is said that anæmia of the part heightens the effect of cocaine. See **Kümmer**: *De l'anesthésie par injection de cocaine et du bon effet de la bande d'Esmarch* (*Rev. Méd. de la Suisse Rom.*, May, 1890).

3. Antiseptics and Asepsis.

Address on the present position of antiseptic surgery, International Congress (*Brit. Med. Journ.*, Aug. 16, 1890).—**Sir Joseph Lister** in ordinary general surgery secures the vessels, washes the wound with 1·500 perchloride solution, and irrigates with 1·4000 to the end. But he thinks that possibly irrigation may be abandoned as the spray has been: for (1) the latter gave quite a false security, and (2) blood serum, and even pus, are not favourable soils. With stringent precautions against infection it would probably not be difficult to keep a wound aseptic without irrigation. This source of irritation being avoided, drainage would be unnecessary, and wounds might be sealed without need arising for such firm elastic pressure as is now often used, which is

frequently very irksome, and may cause sloughing. This, which Sir Joseph regards as ideal, is *aseptic* or clean surgery, as opposed to germicidal surgery.

With regard to *aseptic* dressings of sterilised cotton wool, they are impossible to the ordinary practitioner, and are unfit for dealing with cases in which there is enough discharge to soak through, for putrefaction would at once commence. For such cases—and there must always be such—the ideal dressing would not allow putrefaction to occur though it were soaked through and through (*see* Cyanide dressing below); i.e., the dressing must be germicidal to meet all cases. The need for an antiseptic dressing becomes greater in private practice than in hospital work, where wounds are constantly watched. Nevertheless, it has been amply proved that the possibilities of aseptic surgery are great, and in the above concessionary remarks Sir Joseph is following rather than leading. Wherever surgery is progressing actively, men are to be found who, having learnt the lessons of antiseptic (germicidal) surgery, have learnt also its dangers and inconveniences. They are showing what can be done by simple cleanliness—the most “antiseptic” of measures. Others, again, working both with and without germicides, are demonstrating that wounds which contain no (or few) pyogenic organisms, or no soil suitable to the rapid growth of such germs, may be safely treated without drainage; and the elastic pressure employed to prevent distension of the flaps is not found to inconvenience patients greatly—not half so much as the anticipation of a dressing 12 or 24 hours after an operation. Whilst personally believing in the frequent need for germicides in surgery, and regarding many of the results of “cleanly” surgery as being largely due to simple dryness, the writer cannot but admire the thoroughness with which the advocates of cleanliness carry out their views, and wish that all surgeons were as careful.

At the International Congress Von Bergmann demonstrated his system. The theatre walls are smooth and easily cleaned, the floor damp to prevent dust from rising; instruments are boiled for at least five minutes in 1 per cent. solution of soda, cleaned during the operation by dipping in the same solution, and dried with sterilised gauze before use. The patient lies on, and (except operation-area) is covered by, sterilised sheets. The gowns of surgeon and assistants, all towels and dressings, are kept at boiling temperature for half an hour in a steam steriliser, just before operation. The dressings are in bags, and are fetched from the steriliser as wanted by a nurse with disinfected hands. The area of operation and hands of all concerned are cleansed and disin-

fected as usual, brushes kept in 1 in 2000 *perchloride* being finally used. Bleeding is most carefully checked by pressure with sterilised gauze, clamping and ligature. Catgut for all purposes is sterilised in 5 per cent. alcoholic sublimate solution, and removed to a 1 per cent. solution before use. Silk is purified by steam. Von Bergmann sometimes drains, sometimes only leaves gaps. In tubercular and septic cases the wound is left open and stuffed with iodoform gauze for two days, when as a rule it can be sutured. The results shown were excellent.

Lawson Tait (*Brit. Med. Journ.*, September 27, 1890) published a very vigorous criticism of Lister's address, in which there is undoubtedly a great deal of truth; but we cannot help feeling that, in theory at least, the truth of the gospel of which Tait poses as the special exponent has always been admitted—nay, taught—by Lister and men of his school. Surely we have all learnt that suitable soil and seed must come together for growth to occur; that absence of either soil or seed will prevent growth; that unsuitability of soil will lead to the same result. Lister's view was, "Keep out the germ, and you may leave blood-clot and other matters to take care of themselves." Tait's was and is, "Get out all decomposable matter, and you can let the germs in freely." Tait says that Lister has now come round to his view. The fact is simply this: Both views are true; admitted to be so by all. Lister, believing that it is not possible always to "get out all decomposable matter," has constantly laboured to prevent its infection, or at least, the growth of any implanted germs. Tait, believing that it is possible, has worked upon the opposite tack, and has shown that, in the abdomen at all events, it is safe to follow it. We may be wrong, but we do not think that this applies to all wounds. Experience and an open mind will show. Tait expresses surprise that Lister should claim drainage as an antiseptic measure, because Thornton (?) says that with proper antiseptic precautions it is unnecessary, and may lead to harm. It is, therefore, necessary to point out that Lister's claim proves his recognition of the value as an antiseptic measure of the removal of the "soil"; but that Thornton's (?) experience has shown him that even in the abdomen the "seed" may be kept out, and he objects to an unnecessary tube as keeping open a channel of possible infection. Lastly, the purgative treatment of early peritonitis, which we owe to Tait, is only another variety of drainage, and as such an *antiseptic* measure, i.e., a preventive of putrefaction. Other points might be taken up did space allow.

A propos of Lister's address, Terrier (*Soc. Franc. p. l'avancement des Sciences Sem. Méd.*, No. 36, 1890) says that he combines

antisepsis with asepsis, and prefers the latter. He stoves all instruments but knives, which are cleaned with chloroform and boiled in sterilised water. Compresses and wool dressings are stoved. Silk, boiled before operation in 1 in 1000, is his ligature, and silkworm-gut, similarly treated, his suture.

At the seventh meeting of the Italian Surgical Society at Florence (*Riforma Med.*, April 5 to 16, 1890) the first discussion was on the treatment of wounds. Tiers of buried catgut sutures seem to be largely used to bring together deep parts of wounds, and avoid the pressure of cavities. Silk sterilised by heat, and catgut by sublimate, are the suture and ligature materials.

Much attention is rightly being given to the sterilisation of sutures and ligatures, to which suppuration has so often been traced, and many methods of purifying catgut have been published. Sublimated catgut is at present in favour, but Larochette (*Lyon Médical*, June 1, 1890) states that catgut is reliable if raised gradually to 140° C. in a large space (to allow of escape of moisture) for two hours, then placed with sterilised forceps in boiled olive oil containing 10 per cent., by weight, of carbolic acid.

G. B. Fowler (*New York Med. Record*, August 16, 1890) boils catgut for one hour in 97 per cent. alcohol (b.p. 183° F.). This sterilises even gut which has been soaked in anthrax spore-cultures. The gut should be kept in 97 per cent. alcohol. Its strength is increased, and it slips less in the hands and at knots.

On a new antiseptic dressing.—Address to the Medical Society by Sir J. Lister (*Brit. Med. Journ.*, November 9, 1889); also address to the Hunterian Society (*Brit. Med. Journ.*, January 4, 1890).—Lister had never thought sal alembroth a satisfactory antiseptic, its solubility allowing it to be washed out of a dressing by discharge soaking through, and the solution of it in a large dressing becoming so irritant as often to blister the skin. He has, therefore, continued his search for a more suitable agent, and one was found in what was at first supposed to be a double cyanide of mercury and zinc; it is insoluble in water, soluble in 3000 parts of serum, and $\frac{1}{1000}$ part of the salt kept serum sweet for 18 days in spite of potent septic inoculation; though it arrests development of germs so easily, it is a feeble germicide; it is not irritating. Many difficulties were encountered in devising means for the commercial preparation of a gauze, and were surmounted with great skill and patience. Professor Dunstan, of the Pharmaceutical Society, showed that the supposed double cyanide was not such, and devised means for preparing it in a perfectly definite manner, so that it contains twice as much HgCy_2 as the original substance; this increases its antiseptic but not its irritant proper-

tica. The HgCy_2 exercises the chief antiseptic power, but is very irritant; the combination with ZnCy_2 removes this objection. The cyanide salt is prepared, suspended in water, and 1 part of crystalline hæmatoxylin in solution added for each 100 parts of the salt. The hæmatoxylin is precipitated by the salt, and the precipitate is dried and kept for use. To charge gauze, suspend with pestle and mortar 100 grains of the salt in every 4 pints of 1 in 4000 perchloride lotion. Draw gauze through the fluid till all is taken up; it will contain 2 to 3 per cent. of the salt. Any rags may be thus charged and used as a dressing. The gauze may be allowed to drain wrapped in a sheet, but should be kept moist in mackintosh. If obtained dry, it should be moistened in 1 in 4000, and kept in mackintosh. It is then laid on the wound sterile; even though wet through and through, the fluid will for long find salt enough to saturate itself with, and this will be much more than sufficient to prevent the growth and invasion of organisms.

It is to be feared, however, that even this dressing is not always unirritating, for Lockwood (*Brit. Med. Journ.*, 1890) reported two cases of herniotomy dressed with the above material in which pustules formed freely. On the other hand, A. S. Barling ("Cyanide Gauze as a Dressing," *Brit. Med. Journ.*, September 13, 1890) reports 100 cases from the North Staffordshire Infirmary without any inflammation of skin arising, though such had arisen with alembroth gauze wrung as dry as possible. Its antiseptic power was quite satisfactory. Ceccherelli, at the Italian Surgical Congress (*Riforma Med.*, April 5 to 16, 1890), spoke of the gauze as a first-rate aseptic material.

Creolin.—The high antiseptic value of this fluid being established, it is worth noting that it is not very poisonous, a man having recovered after drinking nearly 9 oz. He soon became unconscious, but recovered next morning, and vomited severely for 24 hours; urine was greenish black, gave cressol reactions, and contained albumen; slight jaundice appeared on third day, and painful clonic cramps in the arms. The temperature rose to 37.9°C . on third.

4. Plastic Surgery.

The most important work of the year has come from Professor Glück, of Berlin ("Autoplastik, Transplantation, u.s.w.," and "Die Invaginations-Methode der Osteo- und Arthroplastik"), in Nos. 18 and 30 of the *Berl. klin. Wochens.*, addressed to the Association of German Surgeons (*Centblt. für Chir.*, No. 25, 1890), and to the International Congress (*Brit. Med. Journ.*, Sept. 13, 1890).

Glück thinks his researches show that surgeons can now bridge

over and make good defects in higher tissues; and that, with his absorbable or living tampons, they can fill up all gaps in tissues, preserve exposed tendons and bones, work hæmostatically, and further reactionless scar-formation. The technical principles are—ideal asepsis, non-irritant materials, and exact suture in all higher tissues.

As an example of the filling of a gap, Glück plugs the inguinal canal with a kind of ivory thimble; Thiem has used a catgut plug, and Trendelenburg a cap of bone from the humerus of another individual.

In compound fractures with loss of substance, Glück scrapes out the medullary canal for a short distance up and down, and forces into it a spindle-shaped ivory cylinder of suitable length, having holes drilled through its walls to allow cells to pass. As much periosteum as can be saved is sewn over the plug. Bone removed by operation is similarly replaced. A dog, in which the shaft of a tibia had been thus replaced, was shown, running well, but limping a little when tired.

When a joint is excised, two pieces of perforated and suitably-shaped ivory are fixed firmly into the excavated bone-ends and then connected, so as to work like a hinge. A man was shown after this operation able to painlessly flex and extend his knee through 45 degrees. Altogether, ten cases of the insertion of ivory plugs are recorded.

The value of arthroplasty is very doubtful. The ivory, if it heal in, will wear out; it will be eroded; it may be cast off at any time by suppuration; or it may cause excessive formation of bone around it, leading to fixation of an originally movable joint. Where used in the continuity of a bone, the infiltrating and eroding granulation tissue may ossify, and the bone will thus be kept at something like its full length; but where subject to the wear and tear of a joint, this is hardly to be expected.

Senn (on "Aseptic Bone Cavities," *Amer. Journ. of Med. Sci.*, Sept., 1890) returns (*see* "Year-Book," 1890) to the subject of decalcified bone, which he maintains is the best material to encourage the formation of new bone. He uses a disc in trephining to check bleeding from the diploë, and prevent union of flap with deep parts. Of course this material is infiltrated and removed much more rapidly than ivory.

The repair of tendons.—Glück showed three cases in which—5½, 2½, and 2 years ago respectively—he had replaced 6-10 cm. of long flexor or extensor tendons of the fingers by catgut and silk strands. He drills the phalanx and pegs in the threads to give an insertion to the new tendon.

The repair of nerves (Glück).—Here alone a *specific regeneration* is necessary to restore function as well as continuity. This may occur:—(1) By growth of a new nerve from the central end, and takes 1-2 years, according to height of section. (2) By secondary union after suture and transplantation. New fibres grow out from central end, and simultaneously with degeneration of peripheral fibres regeneration sets in, and many axis cylinders persist. This regeneration is at its height at fortieth to eightieth day; and if suture or transplantation is effected at this time, the phenomena of primary union after secondary suture may be noticed. Secondary union takes half to one year to restoration of function. (3) By primary union. This is due to specific granulation cells (neuroblasts), which bind axis cylinders together, become non-medullated fibres within fourteen days, and medullated in eighteen to thirty days. Few degenerate fibres are found in peripheral end, owing to early conduction of central impulses. Faradisation of nerve below the suture causes muscular contraction fourteen days after operation. Complete recovery takes a quarter to half a year. A cock, with a successfully-transplanted sciatic nerve, was shown, to demonstrate primary union. Kolliker said (Congress of German Surgeons) that Socin's plan of putting ends of nerve to be united into a decalcified chicken-bone, the canal of which forms a guide to the outgrowing axis cylinders, was the best.

The chief English contributions to this department are **Bowly's** excellent monograph ("Injuries and Diseases of Nerves and their Surgical Treatment"), and **E. Atkinson's** paper on "Nerve Grafting," at the British Medical Association Meeting (*Journal*, Sept. 13, 1890), in which accounts of five cases treated at the Leeds Infirmary were given. Usually pieces of nerve, taken from just amputated limbs or from animals, were placed between the divided or refreshed ends of the injured nerve; but once an inch of the great sciatic, accidentally cut out, was at once replaced, and in another a piece of rabbit's spinal cord was grafted into a divided median. In all sensation returned—in one case in thirty-six hours; in another it was but dull after seventeen months; where the spinal-cord graft was used, sensation was distinct at the end of a month. But muscular power returned much more slowly; and though, in one or two reports, forearm muscles seemed to be gaining power, palmar muscles were always noted as atrophied.

The repair of bloodvessels.—Glück states that he has been able in experiments to suture wounds of large arteries, and to bring about healing without thrombosis. **Postempski** (Congress of Italian Surgeons, *Riforma Med.*, April 5 to 16, 1890) mentioned that,

having wounded the femoral vein in opening a deep abscess, he sewed up the opening, with good result; and Bassini (*ibid.*), after extirpating a varicose aneurism, sewed up the hole in the vein.

Skin-grafting is the most often needed of all these procedures, and it is not practised in Great Britain so frequently and systematically as it is in Germany and Austria, where every large raw surface is dealt with by Thiersch's method, i.e., by *sawing* off with a razor thin layers of epidermis and a little cutis, as large as possible, and with them *completely* covering a fresh raw surface, or one from which the soft superficial layer of a granulating wound has been removed by cutting or scraping. All bleeding must be arrested by sponge-pressure over protective before laying down the grafts, and suppuration must be absent or reduced to a minimum. C. J. Symonds reports two cases of chronic ulcer treated by such grafts taken from an amputated limb; but he laid them on the granulating surface, and did not completely cover it, which prevented immediate success. Miles (*Lancet*, March 15, 1890) reports a very extensive ulcer from burn successfully treated with grafts (6 inches by $\frac{1}{2}$ inch) of the whole thickness of the skin of a young greyhound. Watson Cheyne (*Practitioner*, June, 1890) prefers this method to Thiersch's. He cuts his grafts $\frac{1}{2}$ inch to 1 inch, *without subcutaneous tissue*, places them *touching each other* on a raw, dry, aseptic surface, covers them with protective and a light boracic and salicylic wool dressing, which is changed on the third day. The best time for such grafting is when the edge begins to heal—not after six weeks (Thiersch). Cheyne had succeeded with frog-skin grafts, but not with kitten-skin. Di Fede, at the Italian Congress, reported three successful cases of frog-skin grafting.

5. Treatment of small cysts.

Landerer (*Deutsche Zeitschr. f. Chir.*, Bd. 29, Hft. 5 and 6, 1889), injects 25-35 m of 1 per cent. solution of chloride of zinc into hygromata, ganglia, ranula, &c. It causes little or no pain. The cyst gets hard and surrounded by dense œdema, which goes in a few days.

Woakes (*Lancet*, June 21, 1890) evacuates such cysts with a trocar and canula, and applies to the interior a saturated solution of chromic acid. No trouble follows, and obliteration is rapid. A large ranula was thus cured in fourteen days.

6. Treatment of cancer.

Ingis Parsons (*La Semaine Méd.*, Aug. 10, 1890) read a paper at the British Medical Association Meeting, 1890, on the "Arrest of Development of Malignant Growths by a Faradic Current." He uses a battery capable of sending a current of 500 milliamperes

through a resistance of 800 ohms. Soft new growths conduct well, hard ones badly. A current of 200 to 400 milliampères may be used, but not without danger, especially in the neighbourhood of the heart. One case of the author's died of syncope during the second séance. Anæsthesia is necessary. Case 1. F., 38, with mammary cancer of rapid growth, and three glands in the axilla; the current was passed three times in August and September, 1888, the tumour ceased to grow, and pain disappeared. 2. F., 57, scirrhus of rapid growth, painful nodule in axilla. This disappeared after one sitting in September, 1889, and tumour ceased to grow. In March, 1890, growth began again after a blow, and ceased after two sittings; stationary at time of note. 3. Adenoma. 4. Wide-spread cancer; syncope and death during a sitting. In a dozen more very advanced cases, temporary benefit and cessation of pain had been achieved. Parsons' theory is that cancer cells have a *lower* vitality than that of normal tissues. A current which does not destroy the tissues may therefore destroy the cancer.

Resorcin in epithelioma.—Dr. Mario Luciani (*Riforma Medica*, July 3, 1890) applied a 30 per cent. ointment of resorcin in vaseline to two ulcers of the face—believed to be epitheliomatous—after cleansing them with boracic lotion. Both healed in a few months.

7. Blood-vessels.

Aneurism formed a subject of discussion at the British Medical Association Meeting, where T. Holmes read a paper (*Journ.*, Aug. 9, 1890; and *Sem. Méd.*, Aug. 10), at the Associations of German, French, and Italian surgeons. Holmes' address was an exposition of points in the surgery of arteries about which there is more or less doubt. As to the material for ligature in continuity, the inelastic kangaroo tendon stood first, then ox-aorta and catgut; catgut is preferable for ligature in a wound. Division of the thinner coats is not necessary; the great point is to tie tightly enough to *completely* occlude the vessel, and to avoid all risk of the knot slipping. He raised objections to division of arteries between two ligatures and saw no compensating advantages. Sir W. Savory's proposal to return in popliteal aneurism to Anel's operation immediately above the sac (because in Hunter's operation the artery is not obliterated between the ligature and the sac) was viewed with disfavour; and the discussion brought out a tendency towards the operation of Antyllus (laying open the sac and ligature above and below) in popliteal aneurism rather than towards that of Anel. Slight secondary hæmorrhage from the distal end would be treated by pressure; abundant by ligature

anew, or by amputation. Bartlett here related two cases in which he had treated uncontrollable secondary hæmorrhage after ligature of the femoral artery by ligature of the external iliac, and gangrene had not resulted, as common teaching would lead one to expect.

Tillmanns (*Centbl. f. Ch.*, No. 25, 1890) reported a case of large aneurism of aorta ascendens, rapidly increasing, and quite disabling the patient, so far improved by *electro-puncture* that the man was able to resume in comfort his duties as a merchant, though deep pulsation remained beneath the now consolidated, formerly almost bursting, protrusion on the right of the sternum. Enough zinc and carbon elements were used to give a current of 10 to 20 milliampères. The anode (a long steel needle) was inserted 5 cm. into the sac, the cathode (a large metal plate) was placed on the skin near the aneurism. There were thirteen sittings at intervals of three to six days. Antiseptic precautions and the ether spray were used at each puncture. The improvement continued after one and three-quarter year.

A second case, as large as a man's head, had burst into the pleura; but six punctures were found to have worked well in the superficial part. The earlier this treatment is employed the better will be its results.

F. T. Paul (*Brit. Med. Journ.*, Dec. 14, 1889) tied the subclavian, external and internal carotids for an *aneurism of the arch* involving the innominate, and covering the common carotid; immediate healing of wound, but tumour increased. Two yards of carbolised catgut put into sac through a canula: slight consolidation, steady increase, duskiness of skin, and rupture externally on tenth day.

Clementi (Italian Congress) tried repeated compression of the common carotid for an aneurism of the internal carotid simulating a tonsillar abscess: failing, he cured it by ligature of the common trunk.

Discussion on aneurism of the extremities at the French Surgical Congress (*Arch. Gén. de Méd.*, Nov., 1889). All the surgeons who spoke had given up treatment by digital compression and Esmarch's band, because it is painful, cures only half the cases, and renders operative measures more difficult and less likely to succeed. Most ligature at a distance; but Trélat extirpates the sac, and Peyrot does so in selected cases, anticipating that this operation will come more to the front. Péan (*Rev. de Chir.*, Nov., 1889) almost always operates, preferring 48 hours' forced-pressure to ligature; at end of this time he removes the forceps and closes the wound. In small aneurisms he opens the

sac, and compresses artery above and below. In femoro-popliteal aneurism primary union is difficult to obtain (why?), so he finds artery above and below sac, and compresses. The advantages of forci-pressure over ligature are that the vessel is not denuded (but it is crushed with surrounding tissue!), and foreign bodies are not an obstacle (! forceps) to primary union.

A ruptured popliteal aneurism treated by ligature of the femoral, by A. E. Anderson (*Brit. Med. Journ.*, Jan. 4, 1890), shows, like Bartlett's cases above, that the circulation in the lower limb is sometimes better than one would expect. F., 61, popliteal aneurism, 1 year; burst during a long walk, with pain, faintness; large extravasation into the calf, with distensile pulsation everywhere. Tibials just felt at the ankle. Pressure on femoral diminished swelling and stopped pulsation; tied in Scarpa's space; "aneurism" disappeared, but hæmatoma in calf remained; laid open after six weeks, and allowed to granulate.

Diffuse "aneurism" in calf simulating abscess.—W. H. Battle (*Trans. Clin. Soc.*, Dec. 13, 1889).—M., 28, slipped on a ladder five weeks ago; calf painful, slightly swollen next day; worked for a few days; after a fortnight swelling increased rapidly, with acute pain. Leg one-third larger than fellow, very painful and tender, œdematous round ankle and for some distance up. A very hard swelling, non-pulsatile, extending from upper end of tibia to 4 inches above ankle; it was deep, and extended from side to side of calf. About 5 inches above internal malleolus was a red fluctuating area. No pulse at ankle, temperature high. Deep abscess, probably with hæmorrhage into it, diagnosed. Incised where fluctuating, Esmarch's band having been applied; blood and clot only turned out, cavity plugged with oiled lint; bandage and splint. Next day, Esmarch's band applied, plugs removed, incision prolonged up, dividing tibial origin of soleus and inner head of gastrocnemius. Opening found in post. tibial, just below origin; end of popliteal, post. tibial below hole, and anterior tibial at origin tied, artery between threads removed. Foot at first very cold and waxy; vessels felt round knee on twenty-third day. Ultimately, after an attack of erysipelas and suppuration in the knee (cured by two aspirations), and division of the tendo Achillis, the man left the hospital after ten months' residence. Six months later he could walk with a stick, and had perfect movement in knee and ankle. Battle had found four more or less similar cases recorded; in Spence's, recovery occurred after even greater obstruction to the circulation, as one post. tibial vena comes was also tied. J. Berry had seen a foot warm one week after ligature of both tibials and the peroneal.

8. Surgery of the nerves.

Neuralgia of superior maxillary. Bland Sutton (*Trans. Clin. Soc.*, Nov. 22, 1889).—Supposed to be due to teeth; but slight displacement of the eye was noted and infraorbital area was anæsthetic; pain agonising. Tumour involving infraorbital diagnosed, and found by trephining antrum. Upper jaw removed and Meckle's ganglion destroyed by canterly. Admirable recovery. Tumour was myxoma, probably springing from infra-orbital.

Paul Segond (*Rev. de Chir.*, March, 1890) has thrice resected the superior maxillary nerve and Meckel's ganglion for neuralgia. No. 1 was free from pain for thirteen months, then slight attacks; Nos. 2 and 3 had six and five months' exemption (up to date). He employed the temporal method by turning down the zygoma and masseter and drawing back the anterior border of the temporal; but he does not mention the ext. pterygoid and int. maxillary artery. He hooks up the nerve, cuts it close to the foramen rotundum, exposes the infraorbital foramen by a short cut, and drags the whole nerve out. He did not drain, used only a catgut suture in periosteum to fix up the zygoma (it was only fractured posteriorly), obtained primary union in all cases, and had no trouble from hæmorrhage. But Czerny, Segond says, had to plug in three cases, and Reyher tied the common carotid.

Brachial neuralgia of many years' standing, with palsy and atrophy of muscles (Perrier, quoted from *Amer. Journ. Med. Sci.*, Oct. 1890).—M., 30, exostosis of 7th transv. process, noticed eighteen years; removed, main vessels and plexus being drawn aside. Pleura was wounded: pneumothorax and emphysema, which disappeared in a few days. Primary union; complete recovery.

Nerve-grafting, see p. 201.

9. Surgery of bones and joints.

Osteomalacia treated by salpingo-oöphorectomy (International Congress, Obstetric Section).—Fehling (Basle) recalled the grave prognosis of the disease. The improvement noted after Parro suggested that oöphorectomy might do good. Had operated in nine cases: eight cured, one died of intestinal obstruction, due to adhesion of gut to uterus. Ages 28—51: one had suffered thirteen years. Cessation of menstruation was not the cause of the improvement; for some had ceased to menstruate, yet no relief followed. Trauzl also reported two cases in which the disease was arrested. In one there had been no pregnancy.

Massage and mobilisation in the treatment of fractures. Brochure: Lucas-Championnière, 1889. — Lucas-Championnière argues that pain, stiffness, swelling, and weakness, persisting after a

fracture are due chiefly to prolonged immobilisation. Massage brings about speedy relief of pain, removal of swelling from blood and exudation, rapid formation of callus, early restoration of function of muscular and other soft parts, absence of atrophy during or after treatment. If only one of two bones is broken, without displacement, use massage alone : if both bones with displacement, splints removed every eight to ten days for rubbing. Fractured patella alone must not be treated by massage : Championnière would employ suture. Kendal Franks (*Trans. Roy. Acad. Med. in Ireland*, April 11, 1890) reported that massage produced astonishing results in recent sprains and fractures. In a Pott's fracture massage was used after 18th ; patient walked with a freely movable ankle twenty-two days later. A boy of fifteen with transverse fracture of both bones of leg was able to raise limb from bed on the 20th, and to walk with light support on 26th.

On blood tumours of bone (Ed. Roughton, *Med. Chir. Trans.*, Dec. 10, 1889).—Tumours are occasionally found in bone consisting almost entirely of blood : all are regarded as malignant, and most probably are so : some are only semi-malignant, others simple. A series of six cases shows this, the first being a highly malignant sarcoma, the last a swelling cured by rest and pressure of an elastic stocking, whilst the intervening cases were cured for years, or absolutely, by ligature of the main artery, or by simple incision. Roughton thinks that the proper treatment would be to incise such growths and allow them to granulate ; if they continue to grow, adopt radical means. Maguire points out that a thin sarcomatous edge might easily be overlooked, and valuable time lost.

Is amputation at the hip for new growth of the femur justifiable ? (Borck, Congress of German Surgeons, *Centblt. für. Chir.*, No. 25, 1890).—Nine cases at Rostock and 109 from literature = 118. Of these, twenty-four died directly from the operation ; four died soon, probably from operation ; four died, but neither time nor cause is noted. Of eighty-six left, fifty give no after-history or one of less than ten months ; of the other thirty-six, twenty-six certainly died of secondary growths at four weeks to four and a half years ; one died of local recurrence, and five of intercurrent maladies. Four cases remain with after-histories of twenty-six months to twelve years, and in two of these suspicious nodules were present. Borck would not on this evidence abandon the operation, but thinks that doubt as to its efficacy in saving or even prolonging life is justified.

Central fibro-sarcoma of sternal end of clavicle. (G. Barling, *Brit. Med. Journ.*, Mar. 15, 1890).—M., 23, twelve months'

pain, ten weeks' swelling, pyriform of inner three inches of clavicle, no signs of infiltration or pressure: incision, bone sawn through inside coracoid and easily removed. Wound drained. Death on 5th, septic mediastinitis and pleurisy. Of twenty-four cases, six died within five weeks, two perhaps unconnected with the operation; six untraced; of remaining twelve, five died of recurrence, four were well three to twelve months after, and one each at three, ten, and fifty-four years after.

Removal of entire upper extremity for osteochondroma (18 lbs.) of humerus: recovery. (Thos. F. Chavasse, *Med. Chir. Trans.*, Jan. 14, 90).—Berger's method followed and recommended: Resect middle third of clavicle, tie subclavian art. and vein and supra-scapular vessels, form oval skin-flaps and remove rest of clavicle and limb. Secondary hæmorrhage on seventeenth day necessitated ligature of second part of subclavian. Southam (*Brit. Med. Journ.*, Dec. 14, 1889) successfully removed the same parts in a girl of eleven, for round-celled sarcoma of the scapula invading the axilla: but he raised skin-flaps first, exposing the tumour, resected outer half of clavicle, divided the pectorals, tied the first part of the axillary vessels, and cut muscles attached to edges of scapula. Operation lasted fifty minutes. Great shock for several hours; up on twelfth. Southam anticipates death from recurrence, on account of the following experience.

Pure round-celled sarcoma of scapula. (Southam, *Ibid.*)—M., 14; incision, skin reflected, muscles divided on vertebral, axillary and upper edges, coracoid and acromion sawn through, joint opened, and scapula removed. On ninth signs of paraplegia, then spinal curvature, dyspnoea, and death, eight weeks from operation. Many secondary growths.

Macnamara's case of myeloid sarcoma of the head of the humerus treated by excision of the head and neck (*Clin. Soc. Trans.*, Nov. 8, 1889), with no recurrence after a year, is noteworthy in connection with the growing tendency to treat this form of sarcoma by erosion or operations not going very wide of the disease.

Two cases of old subcoracoid dislocation of both shoulders (Sir J. Lister, *Brit. Med. Journ.*, Jan. 4, 1890).—In both cases Lister cut on to the head, divided the muscles attached to the tuberosities, and by manipulation alone, or with pulleys, succeeded in placing the humerus in the glenoid fossa. In the second joint of the second case the head was chiselled off, the tuberosities being intact; reduction was easy, but the result as regards movement was not so good as when the head was left. The first case had all the natural movements in normal degree except elevation,

which reached the horizontal only, but was improving. Result in second case not quite so good, improvement slower. Lister advises in such cases to cut down and out from coracoid between deltoid and pect. maj.; detach soft parts and periosteum from upper and inner part of humerus; if manipulation does not succeed, turn out head and detach ext. rotators. If manipulation now fails you can still remove head.

Treatment of tubercular joint and spinal abscesses by iodoform injections.—Bruns, Congress of German Surgeons (*Centblt. f. Chir.*, No. 25, 90).—Experience shows that iodoform, in long contact with tubercular foci, cures. Bruns uses a sterilised 10 per cent. emulsion in olive oil or glycerine. He thus cured 80 per cent. of over one hundred cold abscesses, ten being spinal; as the cure has lasted, the spinal caries must also be cured. Recommends same treatment for tubercular empyema. In more than fifty cases of tubercular joint-disease, Bruns has had surprising cures, which have lasted for years. In simple *synovial arthritis*, he sticks a strong, hollow needle into the swollen synovial membrane and joint-cavity, and injects 2 to 6 cc. at one or various points. Empty any *abscess* in or near a joint and inject enough (10 to 30 grm.) to fill it moderately. *Fixation* is required only if there is much pain, and this generally disappears soon; usually careful use of the limb is permitted, and the patient is treated as an out-patient. In parenchymatous cases, inject once a week, into cavities once or twice a month. Except in quick subsidence of pain, improvement must not be looked for under six to eight weeks. A joint always fills up after first injection, then fluid is gradually absorbed. Motion may be preserved in part or wholly. In severe cases and in old people, cure may not be accomplished; only relief of pain, lessening of swelling, and improvement in use. Best results obtained in the hand; then, almost equal, the elbow, knee, and foot. The cure must not be too early regarded as complete. Heusner, on four to five years' experience, agreed with Bruns; so did Trendelenburg, who reported 135 cases thus treated, with and without fistulæ, cases for amputation alone being excepted. A striking result, though perhaps not cure, was obtained in sixty-eight per cent. Trendelenburg treats thus also tuberculosis of soft parts, glands, testes, and lungs—a large field for further work. Von Eiselsberg stated that Billroth (who introduced the treatment in 1881) had for past two years opened tubercular abscesses freely, scraped out all he could, filled cavity with 10 per cent. iodoform emulsion, and sewed up tight, with very good results. This plan of treating cold abscess has been used by many surgeons here, as also the simple injection, but we have nowhere

met with statistics so strongly commending it. The chief value of the paper and discussion, however, lies in the extension of the treatment to pretty well all tubercular lesions. The presence of small sequestra was thought by Krause to make no difference to success.

Krause also read a paper on this subject, but had thus treated only severe cases; still his statistics were decidedly favourable. One knee improved whilst the patient died of phthisis; another patient (19 years) died of general tuberculosis, beginning four weeks after opening and injection of abscess. Ankylosis, Krause says, is always the result in the hip if the case is watched long enough. He showed four knee-cases cured at least one year:—M., 20, amputation considered; four injections of 20 to 40 grms. in four months: ankylosis. Three others with suppuration, all had movable joints, and one (M., 8 years) seemed quite normal. Krause taps an abscess with an abdominal trocar, washes out with boric lotion till clear, and then puts in iodoform lotion up to 60 grm.; if no abscess, a strong 2 mm. trocar, a pad of gauze over the puncture, then massage and passive motion to drive the iodoform about. To inject the hip: Trocar 7 to 7.5 cm. long in lean adults; undo flexion as much as possible, adduct, rotate slightly in, and puncture straight in above trochanter till bone is felt; glide upwards and deeper till stopped again by edge of acetabulum, then inject.

Balsam of Peru in tuberculosis (Landerer, *Munch. med. Woch.*, Nos. 40, 41, 1888, and No. 4, 1889), injected pure or dissolved in ether, is specially successful in tubercle of joints (seventy-four cases treated). If suppuration has occurred, erase and apply pure balsam. For tubercle of internal organs, use intra-venous injections. Observations on healthy and infected dogs show method to be worthy of further trial.

Operative treatment of tubercular disease of the knee.—Wm. Thomson (*Brit. Med. Journ.*, Dec. 7, 1889).—Thomson regards excision as the operation, preferable to erasion. The possibility of retaining movement after arthrectomy, he says, often leads to the missing of deep foci in the bone and that troublesome tendency to persistent flexion; and as to shortening, that may occur without any operation, and "has not been great" in his hands. Thomson and his colleagues have done fifty cases, with one death, and are well satisfied with the result. In the discussion, the chief Dublin surgeons expressed themselves similarly, and most of them would perform excision as soon as pulpy disease is fairly marked; yet Thornley Stoker had been watching two years for a case suitable for erasion, but had always been obliged to excise.

At the Congress of German Surgeons (*Centblt. f. Chir.*, No. 25, 1890) an opposite view was taken, a view which we think would be upheld in England. Angerer (Munich) dealt with the *results of knee-arthrectomy*. He had done eighty-two operations, sixty-three under fourteen. The danger of overlooking bone foci was slight. Of seventy cases, primary union occurred in forty-eight; ten of these recurred, but eight soon healed soundly after sharp spooning and iodoform. Nothing said in report of remaining twenty-two. Arthrectomy is a great advance on excision, especially in pure synovial disease, which is not uncommon in the knee, especially in children. It should be performed early—even a weak child bears it well; epiphyses are saved, and growth is not interfered with. Angerer tries to get a movable joint by early movement and massage; he thinks this the best way to prevent late contraction.

Sandler (Magdeburg) spoke on *mobility after arthrectomy*. Two patients shown: (1) M., 26, operated on four years ago, both knees at different times; left, primary synovial disease, total arthrectomy; right, primarily osseous, two hazel-nut foci in inner tuberosity of tibia, partial arthrectomy, back of joint being sound; no recurrence, full extension, good flexion, does any work. (2) F., 57, operation one and a half years ago, early cherry-sized focus in inner tuberosity of tibia; partial arthrectomy, full extension, almost full flexion, complete working power.

10. Surgery of the brain.

Little real advance appears to have been made in this department; but the skull has been opened, experimentally, in new classes of cases, often with more favourable results than one would *à priori* have expected.

Surgery of the central nervous system.—Horsley, International Congress (*La Semaine Méd.*, No. 37, 1890).—A good summary of what has been done, with an expression of the author's views upon the various points. Thus, Horsley thinks that operation is indicated whenever the brain is injured by a traumatic lesion, the advantages of this course far outweighing its disadvantages; for in the great majority of cases such injuries lead to epilepsy, dementia, or arrest of development. In cerebral hæmorrhage, when called in during the first four hours, the common carotid should be tied, the danger of the operation being comparatively slight, and thrombosis and temporary paralysis being prevented by rigid asepsis. Severe localised headache of traumatic origin, resisting treatment, is an indication for trephining. Horsley has trephined twice for meningitis; both cases died. The probability that a tumour is present, with no improvement in six weeks, justifies

exploration. In pachymeningitis, only a portion of the thickened dura can be removed, but it is important to operate early. Gummata should be removed, for specific treatment never cures them; so also tubercular masses and all malignant growths, even though too large for complete extirpation, for the removal of part will give considerable relief. Horsley thinks that athetosis may be benefited by removal of cortex; but in a recent case he removed too little and the movements reappeared. In operating for Jacksonian epilepsy, Horsley now explores the cortex with electrodes, and excises that part which gives rise to the signal symptom.

Of forty-two cases of trephining, Horsley lost ten, two from shock and two from septicæmia. He has done laminectomy eleven times, with one death from shock. There is nothing new in the indications, and the report (the best we have met with) does not give any details of the cases.*

In the discussion, Erb spoke of the difficulty of diagnosing cerebral hæmorrhage and thrombosis, in which latter operative interference would be useless.

General paralysis of the insane treated by trephining.—T. Clays Shaw (*Brit. Med. Journ.*, Nov. 16, 1889, and June 14, 1890), believing that in the early stages of general paralysis, pressure is increased within the cranium, and that the excess of fluid present is not the *result* of shrinking of the brain, determined to try trephining for the relief of pressure. He selected a well-marked case (diagnosis confirmed by Ferrier), and Harrison Cripps removed $1\frac{1}{2} \times \frac{3}{4}$ in. of *skull and dura* over one central sulcus, 2 in. from the vertex. Healed in ten days. Soon after the operation the patient was noted as being no longer insane, having no convulsions, swallowing and speaking better; but the bulbar symptoms did not disappear. The man was about to be discharged as "not insane," when he was seized with convulsions, lay comatose for some days, and died six months after operation.

Another well-marked case was similarly trephined (*Brit. Med. Journ.*, June 14, 1890) in front of left parietal eminence, a very painful spot due to a blow fifteen months before. Healed in a few days. Soon after pain was gone, memory much improved, no trace of delusion beyond a certain amount of contentment and well-being. Motor symptoms stationary. He could not be considered insane, and was given place as ticket-collector, but could not keep it. Was irritable four months after operation.

Shaw and Cripps think the improvement worth having; both men after operation might have made a will. They hope by

* Full report in *Brit. Med. Journ.*, Dec. 6, 1890.

operation in earlier cases, with freer removal of bone and membranes, to get better results. In both cases the dura bulged markedly through the trephining hole, bearing out the theory that increased pressure exists.

The theory sublying this operation was severely criticised by **Revington** and **James Adam** (*Journ.*, Nov. 23, 1889), and **Percy Smith** (*ibid.*, Jan. 4, 1890), who believe that intracranial pressure is not increased in general paralysis, and regard the improvement as temporary, such as is often seen without operation. **Batty Tuke** (*Journ.*, Jan. 4, 1890) combats Revington's statements, taking each up in a scientific manner. He thinks **Claye Shaw** fully justified in operating.

Among new or unusual applications of trephining are the following:—

Trephining in a case of actinomycosis of the brain (**Otto Keller** *Brit. Med. Journ.*, March 29, 1890).—F., 40. Pleurisy in autumn, 1885, abscesses over 6th and 11th ribs early in 1886, scraped and drained, ribs being covered—actinomyces grains in pus; a small fistula remained. Re-admitted February, 1888, for increasing weakness of left arm. Diagnosis: actinomycosis of right motor area. Operation declined. Convulsions of right arm, extending typically, soon followed, and paresis spread to left leg and half face: headache, vomiting, and finally coma supervened. Then **Burger** trephined without anæsthetic over middle of right ascending parietal, incised dura and discoloured brain, and let out 3ij. of thin green pus, containing numbers of actinomyces grains. When abscess was opened, patient (on table) awoke and called for water. Quite conscious next day; facial paralysis gone on 8th, and could move leg; began to walk in six weeks. Wound healed in two months, and patient felt well and improved further; but weakness of left arm and slight contraction of fingers remained. Towards end of 1888 paralysis increased, convulsions and vomiting returned; brain reopened, pus let out; no improvement; death Jan. 4, 1889. Post-mortem: Mass of new tissue occupying centre of right central convolutions; underneath this an encapsuled abscess size of a nutmeg.

Trephining for hydatid pressing on motor area.—**C. P. B. Clubbe** and **Graham** (*Australasian Med. Gazette*, July, 1890).—A good contribution from Sydney. M., 16, failure of memory, giddiness and sickness one year; then blindness of left eye, weakness of both legs and right brachioptegia. Post-neuritic atrophy of both discs found by **Graham**. Motor power much improved by full doses of bromide of potash. Had a fit, right brachioptegia much worse, stupor. Trephined over right arm centre and hydatid

cyst removed entire; pressing on motor area. Primary union; power regained, but total blindness remained.

Hæmorrhagic cyst removed.—Lucas-Championnière.—M., 53. Paresis of right leg, marked contraction of right hand and epileptiform attacks increasing in frequency and strength, left after apoplexy. Regarded as due to hæmorrhage into precentral convolution. Trephining over middle of central sulcus, cyst found in middle of precentral gyrus, and its rusty contents washed out. Contraction of right hand gone next day; walking improved. Fit two months after operation, none during next four months.

Old hemiplegia and headache.—Hale White and Arbuthnot Lane (*Clin. Soc. Proc.*, Feb. 14, 1890).—M., age 29. Two falls on head fourteen years ago. Left hemiplegia since second; frequent fits, chiefly on left side, up to eighteen months ago. Trephined over right central sulcus; bone $\frac{3}{4}$ in. thick, dura also thick, convolutions much wasted; bone and dura removed, a few fragments of former being replaced. Quick healing; a fit and some headache after the operation, then complete recovery (seventeen months had elapsed).

Severe headache, sometimes accompanied by fever and delirium, in M., aged 33, following a compound fracture 1 in. to side of sup. angle of occipital. Trephined here, bone depressed $\frac{1}{2}$ in., and a smooth projection, like a bone button, pressed upon dura, which was normal. Disc removed, primary union, quite well five months later. (There is nothing in the paper to eliminate the effect of dividing the scar.) George Buchanan (*Brit. Med. Journ.*, Dec. 14, 1889).

Jacob Frank and Archibald Church publish some interesting cases of a more or less experimental kind in the *International Journ. of Med. Sciences*, July, 1890, from which the following are selected:

1. *Terminal dementia of alleged traumatic origin.*—F., 28, struck her head against roof of cellar, was delirious for a few hours, then developed sub-acute mania, which ran on to complete dementia: she was filthy, destructive, and did nothing. Discharged from an asylum after nearly five years' residence. Patient's father found flattening over right coronal suture (a brother had it also), and believing it to be due to injury, insisted on trephining being tried. Trephined over middle of right central sulcus. Bone and dura normal, probably 4 oz. of cerebrospinal fluid escaped. Pia oedematous, nothing felt by finger passed in all directions, arachnoid (*sic*) very vascular, and torn off whole field; bleeding stopped by pressure. Dura sewn into place, bone replaced (discs and chips); iodoform wick drains from beneath dura and skin.

Rapid union, and bone got firm later. Steady improvement, asked for vessel on 3rd, menstruated a little later (there had been amenorrhœa); on return home father thought her no longer insane, she had steadily improved, especially in bodily health and memory. Three months after operation had a fit, another in six months, then three bad ones with loss of consciousness; gradually became insane, and was readmitted one and a half years after first operation, in fair physical condition, but almost as bad as ever mentally. Fits indicated operation again at former site. Almost all *small* bits of bone absorbed, *large* pieces firmly adherent, convulsions red; nothing found by finger, no bone replaced, wound closed and healed by first intention. She wrote on the 9th, was up and around on 11th, and made all her wants known. Still improving a month after operation.

Idiocy with generalised and continuous choreoid movements (ibid.)—M., aged 8; chorea appeared after fit at 1 year. Parents wished operation. $\frac{1}{2} \times 2$ in. of bone removed over left motor area. Dura twice normal thickness. Similar small opening on right. Cavity explored—*nil*. 32 grains of motor cortex removed for examination. Twenty minutes after operation moved all limbs voluntarily except right arm. In the evening free from choreic movements. Use of all limbs next day. Died unexpectedly on 3rd. All parts healing well; replaced bone discs fixed to dura.

Fracture of skull, subdural hæmorrhage on both sides localised; trephining, removal of clot, relief of symptoms, death from bleeding from ruptured liver (ibid.)—M., 23, jumped from window, was picked up, and admitted deeply comatose and breathing ster-torously; bleeding from left ear and nostril; contusion over right parietal eminence; left pupil widely dilated, fixed; left arm paralysed and flaccid, left leg paretic; right limbs slightly resisted passive movements; five right ribs broken. Guided by bleeding from ear, a $1\frac{1}{2}$ inch disc was removed from left squamous; dura bulged tensely, and some 6 oz. of bloody fluid spirted out on incising; no anæsthetic had been given, and as stitches were put in right limbs were freely moved, not left. Bruise on right side incised, director felt fracture in front of parietal eminence; trephining; about 12 oz. of bloody fluid let out from subdural space, and large clots scooped from posterior fossa. Much bleeding from pia, which seemed injured; exploring finger broke down arachnoid (*sic*) and bleeding ceased. Breathing became natural, all limbs moved on painful stimulation; consciousness not recovered; death twenty-four hours after operation. Abdominal cavity full of blood.

In this case the history which leads to the diagnosis of sub-

cranial hæmorrhage, viz., that of a more or less conscious period intervening between the injury and the coma, was absent. When the injury to the brain is sufficiently severe to cause insensibility, which lasts until the cortical vessels pour out sufficient blood to seriously compress the brain, fear is entertained that life is impossible, and that trephining will consequently be useless. No doubt the prognosis is much more serious where conditions leading to prolonged insensibility and serious intracranial hæmorrhage occur together; but recovery not uncommonly occurs after long unconsciousness, therefore it would seem right to relieve the brain from the pressure of effused blood, even subdural, as the risk of opening the dura is now so much reduced. The difficulty is to decide, in most cases of this sort, upon the side on which to trephine; we should have thought that unilateral paralysis (if present) was a better guide than hæmorrhage from ear or nose, and the above case bears this out.

Surgery of the lateral ventricles.—Keen, of Philadelphia (Internat. Congress, Surg. Sect., *Sem. Méd*, Aug. 20, 1890).—Three cases of puncture and drainage of lateral ventricle. No. 1, suspected cerebellar tumour, trephined 3 cm. behind left aud. meatus and 3 above Reid's basilar line, punctured with a hollow needle towards a point 6 to 7 cm. above right meatus; at 4 to 5 cm. cerebrospinal fluid escaped; three horsehairs inserted as drain; no bad symptoms, swelling of optic papilla relieved. Drainage became insufficient, and tube was inserted after fourteen days. On 28th right side of brain explored, and right ventricle drained. Irrigation with boracic lotion from one tube to the other; the patient said "Cela fait du bien." Boiled water used later. Death on 35th. Post-mortem.—Sarcoma compressing the veins of Galen and the right lateral sinus; cerebrospinal fluid clear, no inflammation about drain-tracks.

In two cases of tubercular meningitis the same operation was performed; in one convulsions, apparently due to too rapid escape of fluid, were checked eight times by injecting 20 to 30 grm. of boiled water. Both fatal.

Keen would use a needle of size No. 13 F., and would drain with twelve horsehairs doubled on themselves.

Cerebral abscess.—Many cases recorded. No improvement in results. Watson Cheyne (*Brit. Med. Journ.*, Feb. 1, 1890) reports a case of recovery from temporo-sphenoidal abscess from ear disease. He suggests the use of sinus forceps, rather than of a hollow needle, as an exploring instrument; the latter may certainly traverse an abscess and draw off no pus. He used a silver drain tube.

11. Surgery of the spine and spinal cord.

Symptomatology of total transverse lesions of the cord, with special reference to the condition of the various reflexes.—**Charlton Bastian** (*Med. Chir. Trans.*, Feb. 25, 1890).—In deciding whether to operate or not in cases of fractured spine, the one thing it is desirable to know is whether the physiological continuity of the spinal cord is interrupted. If it is completely interrupted, operation can be of no service. In the above paper Bastian gives satisfactory proof that the results of a *total* transverse lesion of the cord in the lower cervical or upper dorsal region are absolute loss of sense and motion below its level, and abolition of all reflexes—superficial and deep; in such cases exaggeration of the lumbar reflexes (*e.g.*, erection never occurs). A very slight continuity will alter this entirely, leading to rigidity with exaggerated reflexes. The discussion supported these conclusions.

On the condition of the reflexes in cases of injury to the spinal cord, with special reference to the indications for operative interference.—**A. Bowlby** (*Med. Chir. Trans.*, 1890).—Eleven cases of complete crushing of the cord; in all the limbs were flaccid, tendon-reflexes abolished, ankle-clonus and rigidity absent. Bowlby is doubtful if the deep reflexes are ever lost from injury short of complete crushing. In most, but not all, skin-reflexes also were lost; in some they returned in from one day to many months. No stress should be laid upon skin-reflexes in either diagnosis or prognosis. In injuries of the cord, without complete solution of continuity (three cases), the reflexes were increased. Adding ten more cases to the above eleven, Bowlby stated that in none of the twenty-one, post mortem, was the cord compressed by displaced bone, nor did any other condition remediable by operation exist. The crushing happened at the time of the accident. Laminectomy may be serviceable when laminae have been driven in by direct violence. **Bruce Clarke** maintained that the cord was sometimes pressed upon, as he had relieved paraplegia by extension and manipulation. **Ormerod** said that in cases of complete division faradic irritability was diminished, but the muscle reacted excessively to a direct blow. **Holmes and Langley-Browne** advocated extension and the plaster jacket instead of operation, and the latter quoted cases. (*See Brit. Med. Journ.*, Jan. 11, 1890, p. 80.)

Indications for operative treatment in fracture of the spine.—**Wm. Thorburn**, in an excellent clinical essay ("A Contribution to the Surgery of the Spinal Cord," Griffin & Co.), concludes that, though the operation of trephining the spine (laminectomy) is not dangerous, it should be abandoned, as both *a priori* argument and the results of published cases show that it is unlikely to be of

service, except in injuries to the cauda equina, in which it will prove of considerable value, when it is evident that recovery will not occur spontaneously. Thorburn thinks that if in these cases, after six weeks, there is no recovery, or improvement has ceased, laminectomy should be done. The spinal cord is so soft that it is hopelessly bruised or crushed by violence which inflicts but slight injury upon the nerves; these, too, are capable of regeneration—the cord apparently is not.

Although J. W. White, of Pennsylvania ("Year Book," 1890, p. 156), in his review of Thorburn's book (*Internat. Journ. of Med. Sci.*, Jan., 1890) does not endorse Thorburn's conclusions, and believes that his tables do not bear them out, it is evident that the ground for hoping that laminectomy might relieve some of the hitherto hopeless cases of fractured spine is dying. The few cases of laminectomy for injury published during the year do not tend to alter this opinion.

Treatment of spinal caries by laminectomy.—Kraske (*Centbl. für Chir.*, No. 25, 1890) read a paper on four cases before the Congress of German Surgeons. He objects to the operation that it is not likely to be radical, as the focus is usually out of reach in the bodies, and that the removal of several arches deprives the column of its only fixed point opposite the disease, and renders likely further flexion and compression of the cord; but this may be guarded against by position, and the removed parts may be to some extent regenerated. (Wright, according to Thorburn, re-implanted the laminae.) Therefore, Kraske regards the indications to operate as—(1) caries of the arches with abscess; (2) caries of the bodies with complete paraplegia, the bladder and rectum being involved, and other treatment having failed. In his first case, M., 33, starting from the neck of a rib, neither good nor harm was done; death from bed-sore in eight weeks. No. 2, F., 57, rapid recovery of sense and motion; return of paralysis in two months from falling back of body of sixth vertebra (found post-mortem, disease being almost healed), and death in seven months from phthisis. No. 3, M., 14, rapid recovery; relapse after two months; still alive, paralysis complete. No. 4, M., 12, quick recovery; relapse began in a month, arrested by splint, but recovery is incomplete. In three cases granulation tissue was breaking down; in fourth, two drachms of pus lay in the canal, with necrosed shreds and considerable sequestra. Israel had removed half an arch, let out pus from the canal, and extracted a sequestrum from a body; no improvement. Bullard and Burrell (*Boston Med. and Surg. Journ.*, Oct. 24, 1889) operated on a completely paraplegic M., 46, with marked cystitis and much suffering; operation one and three-quarter

hour; death in thirty-six weeks. They add to Kraske's indications a third, the appearance of acute symptoms threatening life, apparently due to compression of the cord. *Arbuthnot Lane* (*Lancet*, July 5, 1890) removed a tubercular mass from the lower dorsal canal in a case of rapidly developed paraplegia (M., 32); sensation and power returned quickly in the paralysed limbs, and exaggerated reflexes were lost. Report made a month after operation.

12. Surgery of the thyroid.

A possible means of arresting the progress of myxœdema, cachexia strumipriva, and allied diseases.—*V. Horsley* (*Brit. Med. Journ.*, Feb. 8, 1890).—Holding the usual view that the above maladies are due to absence of function of the thyroid, Horsley refers to a proof of it by *Von Eiselsberg* ("Ueber Tetanie im Ausschlusse an Kropfoperationen," Wien, 1890), who repeated *Schiff's* observation on transplantation of the thyroid into the peritoneal cavity, viz., that in dogs "Thyroidectomy loses its danger and an essential amount of its effect if one previously introduces and fixes in the abdominal cavity another thyroid gland from an animal of the same species." *Von Eiselsberg* removed half the thyroid in nine animals, and quickly transplanted it to a fold of mesentery, or into the subperitoneal tissue. Within three weeks the second half was removed. In eight the graft failed and the animals died; in one the graft lived, vascularised, and in no way degenerated, and the animal lived and grew. In four cases half the thyroid was placed between fascia and skin, one "took," and the animal did well.

Horsley suggests that in the above diseases in man part of a thyroid should be transplanted into subcutaneous or subperitoneal tissue. A thyroid from an anthropoid ape would be best, then probably a sheep's. In the subcutaneous tissue, growth or atrophy of the graft could be felt; progress of anæmia would be the best symptom to watch. If after two to three months no improvement occurred, repeat the operation.

In *Brit. Med. Journ.* (July 26, 1890) *Horsley* writes to point out that *Bircher* (No. 357, *Volkmann's Sammlung klin. Vortr.*) had forestalled him. In "acute myxœdema," from accidental complete removal of the thyroid, *Bircher* transplanted a fairly normal piece of thyroid from a goitre into the abdomen; marked improvement, and patient returned to work, the state of the skin only suggesting that the disease continued. Relapse in three months, thyroid having atrophied; another transplantation and even greater improvement, lasting nine months, and menstruation returning after an absence of a year. Slight recurrence at time of writing.

Kocher tried thyroid grafting in 1883, but graft atrophied.

After Bircher's case, Kocher performed five graftings; results not collected, but one patient certainly improved much.

Bettencourt and Serrona (quoted in *Brit. Med. Journ.*, Aug. 30, 1890) placed half a sheep's thyroid beneath the skin in the thyroid region. The red corpuscles increased to normal, speech became clearer, perspiration was restored, menses which lasted three weeks were reduced to four days.

The conclusions that thyroid-grafting should be performed in cachexia strumipriva, myxœdema, and sporadic cretinism is certainly justified; there is as yet much doubt as to whether a permanent result can be obtained.

Final results of ligature of the thyroid arteries in goitre.—Bydygier (*Centbl. für Chir.*, No. 25, 1890).—Twenty-one cases; most of them watched carefully. His method is described in the *Centbl. für Chir.*, No. 14, 1889. Results: Ligature of the vessels on one side uncertain, and usually insufficient; tying both upper or both lower vessels, still less reliable; successive ligature of the vessels, not reliable; simultaneous ligature of all four vessels is useless in fibrous and cystic goitres, but relieved the most severe symptoms (dyspnœa) in gelatinous cases. The ligature acts by producing atrophy of gland cells, with fibrous changes in the gland; hence the best results are got in small and medium recent parenchymatous and vascular goitres; very large masses shrank little. Billroth (von Eiselsberg) had tied the thyroid arteries seven times; twice at two sittings, once three arteries, and the fourth later, four times all four at once. All were vascular, parenchymatous cases; four remained well, three were excised later.

Eight cases of cysts and adenomata of the thyroid treated by extirpation.—Charters J. Symonds (*Clin. Soc. Trans.*, 1890).—Symonds recommends: (1) Always to make a median cut; it gives most room and least scar: when the deep fascia is opened any growth can be brought into the mid-line. (2) Expose the fibrous capsule certainly (white if solid tumour, bluish if cyst), and dissect the gland off it. If the capsule is not seen at once, lift up the edge of the gland and look behind it. (3) Open a cyst as soon as its wall can be securely seized; a smaller wound can thus be used.

The plan of dissecting out these simple growths has been used a good deal in Switzerland.

13. Surgery of the lungs.

A contribution to pulmonary surgery, with reports of four cases of pneumotomy. A. C. Lamothe Ramsay, M.D. (*Annals of Surgery*, Jan. 1890).

All four cases occurred in young adults, three males and one female. The pneumotomy was performed for gangrene after pneumonia; for abscess around a cartridge shell and clothing driven into the lung through the second space; for abscess probably from pneumonia; and for a phthisical cavity "in middle lobe of left lung." The last patient died in two months of septicæmia and multiple abscesses in lungs (no post-mortem); the other three recovered quickly and perfectly. In each case portions of one or more ribs were removed, and the lung incised with Paquelin's cautery knife: the cavity was either drained or stuffed with iodoform gauze.

14. Œsophagus.

Foreign body (bone) discovered by electric œsophagoscope and removed. (V. Hacker, Imperial Royal Society of Physicians, Vienna, 1889.)

Cicatricial and cancerous stricture.—*Le Fort* (*Bull. gén. de Thérap.*, Jan. 15, 1890) regards gastrostomy as justified only by inability to pass even a fine bougie and dilate continuously. At the International Congress he reported favourably upon electrolysis in cicatricial stricture (*New York Med. Record*, Aug. 30, 1890). *Graser* (*Centblt. für Chir.*, No. 25, 1890) recommended, as the result of experience in Heineke's clinic at Erlangen, the performance of external œsophagotomy in cases of difficult and impermeable œsophageal stricture; the chance of successful catheterisation is much increased, as the instrument bears straight on the face of the stricture; and it can lie in without inconvenience, so that in a week one can often pass from the smallest to the largest bougies. Then the external wound is allowed to close, and instruments are passed from the mouth. The method acted well also in malignant strictures.

15. Abdominal surgery.

Present position of abdominal surgery, and discussion at the Medical Society.—*Meredith* (*Journals*, April 14, 1890).—Hysterectomy and treatment of the stump were the chief points dealt with; but irrigation, spray, value of antiseptics, treatment of placenta and sac in ectopic pregnancy, and the need for specialists in abdominal surgery came up.

Flushing and drainage of the peritoneum.—*Delbet* (*Annales de Gynécologie*, Feb., 1890).—A large quantity of water first thrown into the peritoneum, especially if it contain salt, is rapidly absorbed; after this little or none of the fluid is taken up, and strong antiseptics may be added—provided they be removed by a third flushing with water, which would probably undo any good they had done from the aseptic point of view. Therefore most

surgeons use hot water sterilised by long boiling or without any such preparation (Tait, and others). Lister (Congress Address) recommends 1 in 10,000 sublimate, but Gellé (*Annali di Ostetricia e Ginecologia*, 1889) gives three cases in which poisoning from this fluid was strongly suspected.

Delbet holds that capillary drainage alone ensures removal of all fluid secreted during first hours after operation. Mickulicz drains Douglas's pouch by packing it with iodoform gauze; Pozzi uses a glass tube for large particles, and packs round it with gauze (the value of the tube would seem doubtful). Delbet says that if a litre of water be poured into the pelvis, and a glass tube be placed in Douglas's pouch, scarcely any of the fluid can be drawn off through the tube; yet English surgeons have found no reason to be dissatisfied with its action. There can be no doubt, nevertheless, that gauze carefully packed into a cavity will keep it practically dry, rapidly conveying all fluid to the dressing. All drains, Delbet says, are quickly surrounded by adhesions, and thus cause the shutting off of the focus to which they lead from the general cavity. The advice, "Always drain when in doubt," may be repeated here.

Senn's hydrogen inflation.—Senn demonstrated his method at the International Congress, showing that it required no great pressure to drive the gas quickly from anus to mouth of a dog. After shooting a dog through the abdomen, he showed that the lowest bowel-wound was easily found by the distension of the gut with hydrogen up to it; by inserting the nozzle at this wound and again inflating, any higher wound could be equally soon and certainly found. But perhaps the most important point shown was the escape of hydrogen gas through a tube in the wound in the abdominal wall, demonstrating the fact that the intestine was wounded, the point which it is all-important to know, yet which it is often impossible to ascertain without opening the abdomen. Several objections have been raised to its use: 1. If hydrogen inflation demonstrates no perforation of gut, the abdomen will probably not be opened and the peritoneum cleaned, though this may be very necessary. 2. Many conditions, especially impacted fæces, may interfere with the proper action of the test; this has happened to Allis, of Philadelphia. 3. Hydrogen inflation may cause fæcal extravasation, which has not yet occurred, or possibly even rupture of damaged gut. 4. Time is always lost and additional shock produced.

Abdominal section for traumatism.—T. S. K. Morton (*Journ. Amer. Med. Assoc.*, Jan., 1890) collected 234 cases; 96 recovered, 138 died. The list of causes of death is shameful to modern

surgery, *i.e.*, many of the deaths were apparently preventible. Shock and prolonged operation, 8; peritonitis from delayed operation, 36; ditto, after operation, 16; ditto, from overlooked wounds, 11; ditto, from poorly-sutured wounds, 4; ditto, from wounds impossible to suture, 2; toxæmia from absorption of urine from peritoneum, operation having been long delayed, 7. Other unavoidable causes account for a few deaths; but in 4 of them, dying early, overlooked wounds were found post mortem. This shows that *time* is most important, and that surgeons should practise on the dead subject all time-saving methods—*e.g.*, Senn's.

Enterectomy was done 17 times in 15 cases by the old method (Lembert sutures): 2 lived, 13 died. Senn's methods should reverse the figures. Anastomosis will generally be preferable to excision, because one can often use a perforation as one approximate opening, or even draw two perforations together. *Abdominal nephrectomy* was done thrice, 2 deaths; excision of gall-bladder for rupture once, death from cholæmia, due to driving of a stone into hepatic duct at time of injury. *Ureter* divided once, missed, and patient died of it. *Wounds of rectum* were sometimes so low that they could not be sutured; distension with bag might be useful (possibly also Trendelenburg's position). *Diaphragm* wounded twice, followed by hernia; suture, both recovered.

Ruptured bladder.—27 cases, 17 deaths. Causes of death: absorption of urinary products from peritoneum, 7; ineffectual suture, 2; impossible suture, 2; peritonitis after operation, 4; bleeding from a perineal wound, 1. Average time of operation after injury, twenty-four hours: this, with above table, shows that proper treatment should reduce the mortality to *nil*. Delay is owing to the signs of ruptured bladder being unreliable. Morton suggests inflation of bladder with hydrogen. On the dead subject the bladder rises and gives localised tympany; this is lost if bladder be pierced, abdomen becomes distended, and liver dulness disappears. Possibly emphysema might reveal extra-peritoneal rupture. *Walsham* (*Lancet*, Aug. 2, 1890) used the injection test (boric lotion), which Morton says is fallacious, and was by it, apparently rightly, prevented from operating.

Proof of perforation of the peritoneum is the indication to operate.—The chief *contra-indication* is profound shock, unless due to hæmorrhage, when we must operate, though the patient die on the table. The *time* for operation is the earliest possible, and the *incision* should always be median. Except by opening the abdomen, it is often impossible certainly to tell how much cleansing the peritoneum requires, and whether gut has been wounded, hydrogen-inflation being fallacious and objectionable,

and all the "symptoms" of injured gut being unreliable. On opening the abdomen, unless bleeding has to be dealt with, at once begin a systematic examination of the bowel. Prolapse of bowel, through a wound, does not render this search unnecessary; for prolapse may not occur till late, and may consist of bowel from a distant part of the abdomen.

• *Irrigate thoroughly* with hot water, to cleanse peritoneum and treat shock.

Drainage is equally important. One can never go wrong in employing either or both of these, which is vastly more than can be said of their omission. *Always* drain when there has been peritonitis or extravasation of fæces, or where the operation has been undertaken late. It may be omitted in rare cases where there has been no peritonitis, no extravasation, no wound of gut. Glass tube and cotton wick recommended.

If *bowels are distended*, make half-inch longitudinal incisions, let out gas and other contents, and suture immediately. Much less harm is done than by cramming bowels back into abdomen, and driving diaphragm up.

Never give opium, except to relieve pain, and then as little as possible.

Peritonitis, of gradual onset: $\frac{1}{4}$ th grain of calomel and podophyllin every twenty to thirty minutes; sudden: purging should be "progressive and powerful;" if yielding of wound is suspected, reopen wound, irrigate, repair, and give salts.

Feed by rectum for a few days after repair of extensive bowel wounds.

Gunshot wounds of the abdomen.—Lewis A. Stimson (*New York Med. Journ.*, Oct. 2, 1889).—Statistics of New York hospitals show higher mortality from these injuries since operative has replaced expectant treatment. Stimson admits that early operation and quick work would give better results, but would restrict search for wounded bowel to readily accessible portions and probable course of ball. If much time has elapsed, and peritonitis, with marked abdominal distension, is present, Stimson would only establish free drainage of abdomen through wound; at earlier periods, chance of success is sufficient to justify operation, but not to render one imperative.

Perforating wounds of stomach and intestine.—Reclus and Nogues (*Rev. de Chir.*, Feb., 1890). Statistics quoted to show that non-operative treatment has a less mortality than operative. Their practice is, immediately after an injury, to examine wound with probe or aseptic finger to decide as to penetration of peritoneum (they avoid hydrogen-inflation); if it is wounded, to

seal wound with iodoform-collodion, compress abdomen over wool, give morphia hypodermically, and diet strictly. Their indications for laparotomy are: (1) Hæmorrhage of a serious character. (2) Escape of gas and fæcal matter through wound, or soiling of examining finger. If fæcal matter first appears some time after injury, they do not operate, trusting to adhesions. (3) Presence of gas in peritoneal cavity; they are doubtful, but, as gas is likely to be followed by fæces, would operate. (4) Certain injuries, such as kicks, which produce severe lacerations, not multiple perforations. (5) Peritonitis appearing after several hours—operate at once.

The above extracts show that widely different views are held on this subject. Morton's seem to be the soundest; they must be interpreted with common sense. A penetrating wound with a penknife, seen immediately, does not require the same overhauling of the bowel as does a bullet-wound of doubtful course. Above all, surgeons should practise on the dead body all the operations upon the hollow viscera, that they may work quickly and surely upon the living.

Laparotomy for rupture and contusion of abdominal viscera.—**T. S. K. Morton** (*loc. cit.*).—18 cases: 16 died, 2 recovered; of these, 1 died a month later, after operation to close artificial anus, and the other had only bruises, though all signs of rupture were present. (In this case an unnecessary operation was done; non-operators would have counted it a recovery from probable rupture!) Peritonitis, from delay, accounted for 10 deaths; 2 more died from primary hæmorrhage from ruptured spleen, which was excised. In this class of cases, the difficulty of diagnosing a ruptured bowel is extreme. If one operates at once, it *may* be unnecessary; if one waits for peritonitis, the operation *may* be too late. Still, in doubtful cases, the best practice would probably be to get everything ready for operation, watch the patient carefully, and operate on the earliest signs of peritonitis appearing. The following case is an illustration:—**M.**, 14, kicked on abdomen by horse three hours before seen; shock not severe; acute peritonitis during night; median laparotomy 15½ hours after injury; small rupture and ecchymosis of ileum found amid inflamed omentum and small gut; enterectomy, reunion by 40 Lembert's, soiled omentum cut away; flushed with boric lotion; rapid recovery (**J. Croft**, *Clin. Soc. Trans.*, March 14, 1890). Croft, in such cases, would always complete an enterectomy, not establish an artificial anus. **Treves** differed, and would establish an artificial anus.

Fæcal extravasation into peritoneum.—Flushing, recovery

3 cases. **H. Cripps** (*Brit. Med. Journ.*, March 1, 1890).—On fifth day after inguinal colotomy, during coughing, bowel torn from stitches and fluid faeces poured into peritoneum, causing intense pain; six hours after accident, flexure was drawn out, faeces washed away, and pelvis drained; great collapse, but steady recovery. **H. A. Reeves** (*ibid.*, March 22).—Similar accident during operation; made no difference. **Bruce Clarke** (*Lancet*, June 7, 1890).—Small gut gave way as an adhesion to femoral ring was torn; flushing and artificial anus established; death from pneumonia on thirteenth; no peritonitis.

Puerperal peritonitis.—**M. Raymond** (Assoc. Franc. p. l'Avancement des Sciences, *Sem. Méd.*, No. 36, 1890).—Laparotomy on fifth day; 4 litres of purulent fluid escaped, and false membranes removed by hand; washed out with 8 litres of 1 in 1000 sublimate; two drains (from epigastrium and pelvis) removed on eighteenth day, when discharge ceased; temperature fell gradually.

Acute diffuse suppurative peritonitis.—**Hawkins Ambler and Lawford Knaggs** (*Clin. Soc. Trans.*, April 11, 1890).—M., 9; laparotomy on seventh day; a small foetid abscess found in pelvis, and several ounces of thin yellow pus in right loin; round each bowels were closely matted; no flushing; glass drain to pelvis; recovery interrupted by abscess forming above navel, bursting ultimately into wound. In spite of this success, the meeting was in favour of flushing. [The title is, to our ear, somewhat misleading, as no proof is given that there was diffuse suppuration, the gravest form of peritonitis.]

Laparotomy in pelvic abscess.—**Mayo Robson** (*Brit. Gynaecol. Soc.*, March 12, 1890).—6 cases, all successful; median laparotomy; suture of parietal to visceral peritoneum, sutures having at least $\frac{1}{4}$ inch hold; drainage. A vaginal incision should be made only when fluctuation per vaginam is distinct.

Tubercular peritonitis.—**König** read a paper at the International Congress, based on 137 collected cases, including 14 of his own. Of these 7 remained well, 3 had died of causes unconnected with the operation, 3 had been lost sight of. The results of other surgeons also showed a fair proportion of permanent recoveries.

16. Surgery of the stomach and small intestines.

Billroth gave the statistics of his cases of resection of parts of the stomach and intestine (140 cases) at the International Congress.

Loreta's operation.—**Wm. Gardner**, Adelaide (*Brit. Med. Journ.*, December 14, 1889).—F., "two years past climacteric," long suffered from pyloric obstruction; stomach dilated, lump to right

of mid-line just above navel. Stomach washed out with boric lotion; transverse cut in epigastrium; pylorus much thickened, drawn out; 1 in. opening, pylorus admitted No. 6 catheter, finger bored through, bleeding trifling; wound closed with Gussenbauer's sutures. Three to four months later she could eat anything, had gained much flesh, stomach of normal size.

C. J. Bond (*ibid.*).—F., 42, five years' history; symptoms and physical signs as above. Stomach washed out on two days preceding, and again two hours before operation. 4 in. median epigastric incision; pylorus admitted finger, was smooth, adherent to liver and pancreas; an exposed hard nodule of the latter posteriorly felt very like a malignant growth. Enemata for three days, then peptonised food; solid on 10th day; flesh gained, but epigastric pain and slight vomiting occasionally occurred. After three to four months little and bad food told upon her, and she died, after diarrhoea, eleven months from operation. Post-mortem: Both liver and pancreas exposed by ulceration near pylorus. Bond supposes that ulceration causes spasm of pylorus, and this again rigidity; but ulceration has not been mentioned in other cases. Suspicion of ulceration should contra-indicate extreme dilatation. He suggests stretching pylorus to cure ulceration by setting it at rest, even without extreme pyloric stenosis.

Hagyard (*Brit. Med. Journ.*, 1890), a little later, reported that his first case, the first in England, was still well.

Pylorotomy.—Sir Wm. Stokes. Address to Med. Soc. Lond. (*Brit. Med. Journ.*, May 3, 1890).—F., 34, greatly emaciated and exhausted by frequent vomiting for a long period. Stomach much dilated, pyloric tumour distinct, slightly movable. Prepared as above. Oblique 4 in. incision on right side above level of navel used. Steps of operation usual and uncomplicated. Death 11½ hours after operation, duration of which is not given, but a "very protracted period" is spoken of.

Six cases have been done in Great Britain, all fatal but one (Rawdon's). Stokes recommends earlier operations, an exploratory incision being used if necessary to make an early diagnosis; and he thinks that mucous stitches are unnecessary, and that a continuous stitch might be used at least for curtailment of the pyloric end of the stomach. He mentions Senn's plates approvingly, but did not use them. In discussion, Barker said there was something wrong on this side of the Channel, as 9 cases of 11 had been successful in the hands of one German surgeon.

Carter and Rawdon (*Lancet*, April 12, 1890) report a success. M., 55, lost 10½ lbs. in a week. Stomach dilated, tumour above

and to left of navel. Median 4 in. incision; no adhesion. About one-third of stomach was removed. Stomach-wound closed with continuous Lembert's suture, except lower inch; Senn's plates used to approximate this opening to end of duodenum. Rallied well; rectal feeding six days, great thirst being suffered; then a little pancreatised milk every hour by mouth, increased till two pints were taken on 12th. About four months after (apparently) appetite and digestion were excellent, 2 stone had been gained, and man was going to return to work.

Pylorectomy plus gastro-enterostomy.—W. T. Bull (*New York Med. Rec.*, and *Brit. Med. Journ.*, May 10, 1890).—Pylorus and $\frac{1}{4}$ to $\frac{1}{2}$ of pyloric end excised for cancer in F., 29. Cut ends invaginated and closed. Anastomosis effected between front of stomach and early part of jejunum by Abbe's catgut rings; operation $3\frac{1}{2}$ hours. Fed by rectum till 4th. No bad symptoms. On 7th pulse and temperature normal, fed by mouth, bowels acting.

Gastro-enterostomy.—T. K. Clarke (*Brit. Med. Journ.*, November 16, 1889).—M., 48, 14 weeks' symptoms, pyloric cancer and dilatation of stomach. Jejunum near commencement attached to front of stomach $1\frac{1}{2}$ in. from pylorus and from greater curve by Senn's plates; a few Lembert's stitches round union. Tied spouting vessels; pressure of plates did the rest. Attack of pneumonia (septic?), but ultimately did well.

G. S. Stanfield (*ibid.*, February 8, 1890).—M., 53, much emaciated; cancer of third part of duodenum. Operation as above, $\frac{1}{2}$ hour; collapse; rectal feeding till 4th, then beef-tea by mouth. Improvement maintained two months, then pain, etc., returned; death four months from operation: *wound in stomach healed*, silk thread still hanging into stomach. Many secondary deposits. Mayo Robson (*ibid.*, May 17, 1890) reported a similar case, quite successful on 14th. F. T. Paul (*ibid.*) another, fatal on the 7th, up to which date the man had been fed by rectum only. The bone plates had disappeared, the silk remained. Jessett (*ibid.*, May 24) would use kangaroo tendon or chromic gut instead of silk; and, in *Lancet*, July 16, records two cases with Senn's plates—one dying of exhaustion on 6th, the other recovering. He prefers the plan of tearing through the transverse mesocolon and attaching jejunum to post. surface of stomach.

17. Senn's methods of effecting intestinal anastomosis by means of bone-discs.

Though not introduced within the period covered by this report, we notice these valuable methods, and are able to illustrate some of them, Mr. Jessett having kindly allowed us to copy the

diagrams in his paper "On Certain Forms of Intestinal Obstruction, and their Treatment" (*Med. Press and Circ.*, Oct. 8, 1890). The bone-discs are oval plates of decalcified bone, about $\frac{3}{4} \times 1\frac{1}{2}$ in., with a central oval aperture. They are armed with four chromic gut threads—two lateral and two terminal. The quickest and most generally useful way is that shown in Fig. 2. A longitudinal opening $\frac{3}{4}$ in. long is made on the free border of the gut above and below an obstruction, a disc is slipped into each hole and placed lengthwise in the bowel, and the threads are drawn through the bowel-coats from the mucous to the serous surface, so that they keep the edges of the slit in the gut apart. Corresponding threads are now tied firmly together; first the lower lateral, then the two end ones, and finally the upper lateral. Four or six Lembert stitches may be put in round about, but are not essential. Senn first scrapes the peritoneal surfaces which the bone-plates will press together. When enterectomy has been done, the ends should be turned in and closed by a continuous Lembert's stitch, and anastomosis



Fig 2.—CONSTRICTION OF GUT BY BAND; BONE-PLATES IN POSITION.

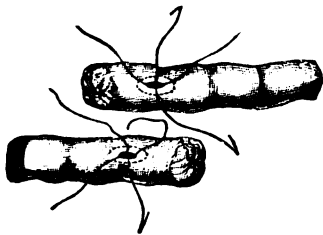


Fig. 3.—ILEO-ILEOSTOMY: SHOWING BONE-PLATES IN POSITION AND ENDS OF INTESTINE INVAGINATED.



Fig. 4.—ILEO-ILEOSTOMY COMPLETED. OMENTAL GRAFT APPLIED.

effected as above described (Figs. 3 and 4). It is a good plan to support such a junction by an omental flap or graft (*i.e.*, a slip of omentum left attached at one end or entirely free) wrapped round it, and attached by a few stitches; this does

much to prevent extravasation. When it is necessary to join the stomach and duodenum, or the ileum and colon, after resection of the intervening parts, both ends may be entirely closed, and lateral approximation practised as just described. Other plans have been successfully practised, but they are less easy to execute.

18. Hernia.

Strangulated right obturator hernia.—Ch. Firth (*Brit. Med. Journ.*, April 19, 1890).—A feeble old woman had had a swelling in right thigh for several years; had had occasional pain, relieved by pressing on swelling, which went with a gurgle. It became strangulated pretty acutely, and was operated on on 3rd day, diagnosis being clear. Adductor longus and pectineus were separated with knife-handle, more than a pint of offensive bloody fluid let out and bowel felt in upper and outer part of wound; thyroid membrane nicked down and in, gut returned and sac tied off. Death from collapse same night. Post-mortem.—8 in. to 10 in. of lower ileum had been strangulated; vessels were above and outside.

Treatment of gut suspected of gangrene.—Fras. Caird (*Edin. Med. Chir. Soc.*, November 20, 1890).—A doubtful bit of gut should be invaginated by sewing together the serous aspects of healthy gut beyond; any bowel which sloughed would be cast as an intussusceptum. One complete and one partial success recorded. Helferich (*Centbl. f. Chir.*, No. 25, 1890) suggests establishing with Senn's plates an anastomosis between the bowel a hand's-breadth above and below the constriction to allow passage of feces; if the constricted loop recovers, disinfect and replace it; if it dies, resect it, cut away mucosa freely and close ends with sutures, and then close the wound. One success; another case died of collapse, but locally everything promised well. When gangrene is established Helferich is doubtful whether this plan would be better than establishing an artificial anus. Surg.-Major W. E. Browne (*Brit. Med. Journ.*, April 12, 1890) tore a piece of small gut (gangrenous?) in separating adherent omentum. M., 36, strangulated slightly 5 days, was bearing operation well; enterectomy, Lembert's sutures, wound closed, dry dressing and rapid healing.

Radical cure of hernia.—This operation is steadily gaining ground. A. E. Barker (*Med. Chir. Trans.*, April 12, 1890) reported on 50 operations upon non-strangulated herniæ, not amenable to other treatment; no death, 2 suppurated, no injury to testes. Some questioned the propriety of operating on young children, their tendency being to get well; but it may be

questioned whether a strong cure is ever obtained by truss pressure, and herniæ occur in children which are very difficult to control.

Lauenstein (*Centbl. f. Chir.*, No. 25, 1890) reports most favourably of Macewen's operation. In a congenital umbilical hernia, Lauenstein shaved off the epidermis and pushed in skin and sac to form a cushion, closing the opening with several tiers of sutures. (Others, *e.g.*, McGill, have formed a pad in umbilical herniæ.) In a congenital inguinal undescended testis, Lauenstein pushed up the testis to form part of the pad.

Trendelenburg (*ibid.*), to strengthen the inguinal region, some weeks ago placed a piece of bone, 3 mm. thick by 4 × 3 cm., in the canal, and fixed it over internal ring by catgut stitches (*see* p. 200).

Stanmore Bishop (*Brit. Med. Journ.*, April 19, 1890) modifies Macewen's operation thus: Free the sac only to the internal ring; pass a long thread, armed with a needle at each end, from below up, in and out of each lateral wall of the sac, so that when the ends are pulled the sac is drawn up like a purse; pull it up thus, invaginate it with a finger, and pass each needle from within out through the abdominal wall (except the skin) on opposite sides of the ring, and tie the threads firmly. A boss is then formed, and is *securely fixed* over the ring. If the sac is large use two long threads. Close canal as usual.

19. Intestinal obstruction.

A discussion on the surgical treatment of acute intestinal obstruction, introduced by **J. Greig Smith** (*Brit. Med. Journ.*, Oct. 11, 1890). Smith divided the cases into three groups: 1, Those seen early, the powers being little depressed; 2, those seen later, the powers giving way; 3, those seen late, the patients more or less collapsed—the terms early, later, and late, having no exact meaning. In Group 1 the obstruction should be looked for and satisfactorily dealt with, through an incision 2 in. long below the navel; seize a coil, follow it in the direction of increasing congestion and distension, and it will almost certainly lead to the obstruction. In Group 2 the complete operation should be performed, but every depressing influence must be guarded against; particularly must anaesthesia be employed only during the parietal incision and the placing of sutures to close it; the search for the obstruction is almost painless. When the obstruction is relieved there is still mechanical obstruction from kinking at numerous acute bends, and it may prove fatal. To remove it, use *intestinal evacuation and drainage*. Wrap patient in blankets, bring a distended but not inflamed piece of bowel into the wound, and insert four sero-muscular

sutures at the corners of a square inch of it and tie them to the ends of a piece of strapping round the back, fill up the grooves round it with an antiseptic ointment, divide the outer coats with a scalpel, and puncture mucosa with a large needle in connection with a large aspirator receiver or long piece of tubing. At first there is a free rush of fluid and gas, then flow becomes intermittent; in an hour or so the abdomen is flat, the puncture is closed by a continuous stitch, the gut cleansed and returned, and the parietal sutures tied. If evacuation is slow, a fine tube should replace the needle and be left in for a day or two. When the obstruction has not been removed, this drainage may be carried on for weeks till the patient can bear a complete operation. Smith would perform enterostomy rather than spend long groping for the cause of obstruction. In Group 3 operate with local anæsthesia only, making a short incision and establishing intestinal drainage. If the patient can thus be tided over forty-eight hours life may probably be saved. In the discussion doubt was expressed as to the possibility of quickly recognising the way towards the obstruction through so short an incision; even those who expressed most appreciation of Smith's grouping of cases according to their tolerance of operation objected to enterostomy, as leaving a possibly strangulated bowel to become gangrenous, and as causing such misery to the patient from escape of contents and juices. Senn's methods were often referred to in the treatment of various forms of obstruction.

Intussusception treated by Barnes' Bag.—W. Rivington (*Lancet*, June 7, 1890).—1. M., 57, with rectal intussusception causing chronic obstruction, with exacerbations in which gut protruded 2 inches from anus. Barnes' bag introduced and slowly inflated: intussusception slowly receded and finally disappeared. 2. Child, 7 months, ileocecal intussusception protruding at anus; two weeks' history. Reduced by two pints of water injected; returned next morning; pushed up and rectum plugged with Barnes' bag, which was removed twice on first day and after 24 hours on second. Tumour had then gone and much flatus escaped. Rivington thinks reduction was due to peristalsis of the sheath; possibly to accumulation of gas above bag.

Lauenstein (*Cenblt. f. Chir.*, No. 25, 1890) failed to reduce a chronic (three months') intussusception of the hepatic flexure into the descending colon in a man of 56, owing to tough adhesions of the large gut to the mesentery; all cut away, ileum united end to end with the narrowed colon; recovery uninterrupted, out in three weeks; 70 cm. of gut involved. Senn (Annual Meeting of Amer. Med. Association, May, 1890) would perform ileo-colostomy

with bone plates for irreducible invagination; also for cancer of cæcum which could not be removed. He thinks that if done before gland-infection, excision of cæcal cancer would give a fair prospect of a cure.

Treatment of artificial anus. Enterectomy.—Thos. Sinclair (*Brit. Med. Journ.*, Nov. 16, 1889).—M., 20, gangrene after strangulated inguinal hernia; 6 inches resected, one row of 25 silk Lembert's, the intermesenteric triangle on each side being narrowed and the mesentery sutured. Parietal wound closed towards abdomen, drained towards skin. Nothing by mouth for seven days; recovery. A second case equally successful.

Enterorraphy.—Boeckel (*Soc. de Chir.*, June, 1890).—F., 78; application of enterotome failed to cure; bowel dissected out and sutured with Lembert's. Kermisson reported four cases, with three failures and one partial success, treated by autoplasmic; one quite successful (*S. flex.*) in which he freed the gut and sewed up the hole horizontally.

Chaput (Paris) at the International Congress (*Sem. Méd.*, No. 36, 1890) maintained that the mortality after resection (30 to 35 per cent. in 90 collected cases) was forbidding. Chaput divided the cases into: (1) *accessible*, in which, a surgeon having done an enterostomy, the spur is long, acute, and easily reached; (2) *inaccessible*, in which, a sphacelus having been cast, there is an intraparietal course of a few millimètres, and a loop of gut may lie between the widely separated limbs of the spur; and (3) *complicated* by a long intraparietal passage, separation of ends, contraction and obliteration of lower end, &c. In (1), Nip 5 to 6 cm. of the spur with the enterotome; when it falls give injections to make lower end act; then dissect out 2 cm. of surface of the gut, raise the mucosa for 1 inch from the edge, and approximate the raw muscular surfaces by a ligature rather than by sutures. Do operation as far as possible extraperitoneally. Close the abdominal wound. In (2), Destroy the spur bit by bit carefully, and finish as above; peritoneum must be opened, but close carefully by suture to the bowel. In (3), If small gut is affected, find the lower end and suture it to the skin beside the upper, and to this "accessible" case apply above treatment. Resection is irrational, as the ends do not correspond in calibre. Chaput's method of dealing with an anus communicating with the colon is too clumsy to be described. Failure is an indication to try again; resection is never the operation of choice nor of necessity; it may be done to yield a quick result at the request of the patient. Before deciding to resect the surgeon must conscientiously weigh his own skill and experience in intestinal surgery.

Perityphlitis continues to receive much attention, and many cases are published. Among the chief papers are those of Morton, before the College of Physicians, Philadelphia, Jan. 1, 1890 (pamphlet), of Schuchardt, Graser, and Kimmell at the Congress of German Surgeons (*Centbl. f. Chir.*, No. 25, 1890), of Krecke (*Deut. Zeitschr. f. Chir.*, April 10, 1890), and of Roux, of Lausanne, at the French Surgeons' Congress (*Arch. Gén. de Méd.*, Nov., 1889). Individual surgeons differ on certain points from Treves as he expressed himself at the meeting of the British Medical Association in 1889 ("Year-Book for 1890," p. 158); but upon the whole his conclusions appear to be supported. Morton treats the pre-purulent stage by rest, fluid food, frequent fomentation, possibly morphia for pain, and calomel or salines and enemata to keep bowels free. Prompt resolution should follow; tedious recovery or relapse points to dangerous condition of appendix. Operate as soon as pus is diagnosed, or even strongly suspected; many risks must be taken rather than that of diffuse septic peritonitis. Morton uses a 4- to 6-inch vertical cut, "from 1 inch above centre of Poupart's ligament up through right linea semilunaris," irrigates with recently boiled water; finds and removes appendix, tying its base and mesentery, enlarging wound if necessary, and drains cavity. If peritoneum is involved, irrigate the whole cavity repeatedly; and if the peritonitis be advanced, withdraw all bowels, part all adhesions, cleanse before returning, and drain Douglas's pouch as well as abscess cavity. He would cleanse curette, and suture a caecal perforation, if it could be easily done; and if he found cæcitis due to foreign body he would push this gently along, or remove it through a simple cut, and close it at once. Close wound round tubes, though swelling will almost certainly necessitate cutting the stitches in 24 hours, and sloughs keep separating for weeks. Morton thus saved 5 of 7 cases, the two fatal ones being almost hopeless. He gives calomel and podophyllin or salines after operation, and keeps bowels acting well. Schuchardt had 9 cases: 1 declined operation, and died of peritonitis; 4 recovered without operation (a movable walnut-sized nodule remaining in one); and 3 were successfully operated upon by drainage of the abscess. In two, certainly, the abscess was extraperitoneal (perityphlitic), analogous to abscess near the rectum without perforation, or ulceration of the gut; in one of these pus was sweet, in the other stinking. Schuchardt uses the oblique incision (over the outer half of Poupart's ligament, beginning 1 to 2 cm. above the anterior superior spine), generally adopted on the Continent. Graser had a series of cases from Erlangen; cause of these abscesses almost always the appendix, pus intra-peritoneal;

mortality of all cases is 30 per cent. for adults, 70 per cent. under 15. Laparotomy is only occasionally successful when there is diffuse peritonitis. Rest, opium, and ice favour adhesions, but have no effect on the disease. Operate as soon as diagnosis of pus is made. If in doubt in acute stage with grave symptoms, make an exploratory incision; also where symptoms and signs remain, though less acute, pus will generally be found—if not, no harm is done (1). He would remove the appendix for a radical cure. Kummell is not sanguine of success in the form with symptoms of acute perforative peritonitis; a case operated on six hours after perforation died of collapse; if patient's strength allows, always remove appendix. In perityphlitic abscess he would operate at one or two sittings, so soon as abdominal and rectal examinations give evidence of an exudation. It is desirable to remove any calculus and the appendix; but a long search and the breaking down of adhesions are to be avoided. Usually such dense matting occurs round appendix that no recurrence occurs; yet Kummell saw recurrence twice in one person after free incisions and removal of a calculus, and three cases of fæcal fistula. Of these, one healed after months, one was still under observation, and one died after an attempt to cure by operation. Krecke tied the base of an appendix, and a fistula resulted which he had to cure by operation; he prefers draining by an iodoform tampon. Roux' paper is temperate and critical. The objects of operating are (1) evacuation of pus to prevent perforation; or (2), if perforation has occurred, the neutralising of its effects. Removal of a calculus and resection of the appendix are not the objects, and must depend upon the state of the patient. In no case should an operation be prolonged and complicated by closing a fistula. If meteorism marks physical signs from the commencement, aggravation of symptoms (fresh rise of temperature, vomiting, frequency and feebleness of pulse) must be accepted as a pressing indication for operation. Of 21 cases of perityphlitic abscess treated medically, Roux had 6 imperfect recoveries (fistulæ and recurrent abscess), and 9 cases of peritonitis, 8 of which died.

On all hands aspiration is condemned as very uncertain (in the discovery of pus) and dangerous; similarly, all condemn the administration of opium or morphia, except in the smallest doses for relief of pain before operation is decided upon. A careful record of the pulse should be kept; a sudden rise is of grave import, often meaning general infection of the peritoneum, and perhaps no other symptoms occur at once in a patient under morphia. Morton would apparently remove the appendix at any cost: in Germany this tendency is not quite so marked, whilst

Roux and Treves do not regard it by any means essential to do so. There are no statistics giving the frequency of recurrence and fistula in these cases when the appendix is left: according to Morton, Kümmell, Thornton (discussion on Allingham's case, *Trans. Clin. Soc.*, March 28, 1890), they would appear to be not infrequent.

Recurrent typhlitis: removal of appendix during a quiet period.—Cases thus treated are now fairly numerous. Kümmell (*loc. cit.*) excised two dilated and perforated appendices, the perforations being scarcely closed by adhesions; recovery. One of these patients had had both ovaries removed, had undergone much uterine treatment, and had become a morphiophagist, her sufferings being entirely relieved by Kümmell's operation. Lawson Tait (*Brit. Med. Journ.*, Oct. 5, 1889) had operated thrice: twice by removing a thick suppurating appendix, once by opening appendix and draining it by a catheter inserted into its lumen, and draining also the abscess cavity round it. All three recovered; but Tait prefers the latter plan to resection of the process. Mitchell Clarke, and George Smith (*Lancet*, May 3, 1890) excised an appendix (containing orange pips, not ulcerated, but so thick that it would have stood by itself) from among dense adhesions between itself, cæcum, small gut, ovary, and broad ligament. Excellent recovery.

Appendicitis in the scrotum.—G. H. Monks (*Boston Med. and Surg. Journ.*, No. 23, 1890) excised an inflamed appendix from a right scrotal swelling (pus) of two months' standing in a child of 13 months.

20. Surgery of the rectum.

Prolapse of the rectum: excision.—F. Treves (*Lancet*, Feb. 22, and March 1, 1890) reports two cases of prolapse of the mucous coat of the rectum, all irreducible or a constant source of trouble. Treves cut the mucosa from the anal skin, turned it down to apex of prolapse, and examined nature of protrusion; when of mucous membrane only, he cut this off level with anus, clamping the upper edge as he cut, finally sewed this edge to the anus with silkworm-gut, and applied an iodoform and wool dressing. No matter how lax the sphincter, Treves would leave it alone. When rectum was prolapsed, Treves turned down mucosa, cut through peritoneum and all coats of the bowel, sutured peritoneum to peritoneum immediately, and finished as above. In all cases control over anus was regained in a few weeks, pain was slight, healing satisfactory. The prolapsus recti was known to be well some months after operation.

McLeod (*Lancet*, July 19, 1890) pushed his hand into the

rectum, made his fingers prominent above left Poupart, and passed two needles through skin and gut at three inches' interval, cut down on bowel between the pins, and sewed it to the peritoneum. Pins removed after 24 hours. **W. H. Allingham** (July 26) had recommended in his father's book very similar operation; but, naturally, he opens the abdomen first, pulls out the flexure with his finger, and sews the meso-rectum to the abdominal wall above the outer third of Poupart's ligament. (Would this operation act in prolapse of the mucosa only?)

Treatment of rectal cancer.—The treatment usual with us may be given as *excision* of cancers, of which we can reach the upper border by the finger in the anus, which have not infiltrated neighbouring parts, have not obviously infected distant organs, and, especially, have not surrounded the gut. Relief of obstruction, pain, hæmorrhage, etc., is afforded in all other cases by colotomy—lumbar or inguinal. The latter of these operations (*see Gripps and Allingham, in Brit. Med. Journ., April 27, 1889*) seems to be steadily gaining ground upon the former, supported by the large experience and excellent results of Bryant (Bradshaw Lecture, Dec. 5, 1889). Abroad, the knowledge that generalisation of rectal cancer is late is a constant stimulant to surgeons to endeavour to obtain a radical cure by extensive operations, **Kraske's** method by resection of the lower part of the sacrum being the latest and most approved. **Rehn**, at the Congress of German Surgeons (*Centbl. f. Chir.*, No. 25, 1890), says that it gives excellent access, but has a mortality of over 20 per cent. from collapse and septic infection. These are best avoided by operating in two stages: first, separate rectum from its surroundings, freeing the upper end well in preparation for the suture to come, checking hæmorrhage, and plug lightly round gut with iodoform gauze, pressing it back into wound by a plug in front. Lock the bowels with opium for four days, then purge; if stricture prevents free action, incise gut freely above the stricture. About tenth day cut off the mass, sew the rectum in position, drain and close the wound. If gut tears in enucleation, excise at once and fix central end to upper angle of wound, circular suture later. Only two cases, and one died from empyema resulting from influenza. **Lauenstein** performs Schede's preliminary colotomy 14 days before excising, that the rectum may be cleansed; five cases, three deaths.

Iversen (Copenhagen), at the International Congress (*Sem. Méd.*, No. 36, 1890, and *New York Med. Rec.*, August 30), regarded the older perineal methods as only palliative, more dangerous than colotomy, but giving longer life. The sacral methods allow hæmostasis and complete removal of diseased gut, fat, and glands.

Complete suture of the rectum (*à la Kraske*) should not be done; the anus should not be saved unless three fingers'-breadth below the disease. The inconvenience of a sacral anus is slight. Iversen recommends a slight modification of Kraske's operation. He reports 8 of his own cases and 11 others (collected) = 19; 8 died, 5 from collapse; and this mortality does not mean that all cases were attacked, as Iversen says that the extent of the disease often necessitates colotomy. Bryant preferred colotomy to Kraske's operation, regarding it as giving longer life. Czerny had operated 18 times *à la Kraske*, with 4 deaths. König now uses Kraske instead of colotomy, and finds the results are better since he has acted on Bergmann's suggestion to leave the wound open posteriorly. The difference between Czerny's and Iversen's results perhaps raises a hope that improved technique may greatly lower the mortality of these operations.

21. Surgery of the Liver.

On resection and regeneration of the liver.—Ponfick (*Centbl. f. Chir.*, No. 25, 1890).—Three dangers result from resection of the liver: troubles from cutting off of bile; others due to removal of liver cells from nutritive exchange of body; diminished supply to and paralysis of heart from cutting off part or all of portal circulation. All may be in great degree got over. In rabbits and dogs removal of one-quarter causes only passing symptoms; three-quarters grave collapse, from which animal recovers after hours or days, appetite returning, general state and weight improving, and finally the animal seems quite normal; removal of whole liver has always caused speedy death. This astonishing recovery is accompanied by marked regeneration of the liver, one-quarter left being able to reproduce a mass more than equal to three-quarters removed—though the regenerated part differs from the normal in form, colour, consistence, and arrangement of lobules.

Partial extirpation of a lobulated liver.—Wagner, of Königs-hütte S. (*ibid.*)—F., 43, marked ascites and tumour in right hypochondrium, very movable, nodulated, and generally taken for a floating kidney. All other organs normal. Mass exposed by long transverse cut; pedicle ran up to liver, very soft and vascular; cut after several ligatures and stitches had been applied; some large veins bled and were seized and tied. Loss of blood trifling. Patient bore operation well; next day sudden collapse and death in a few hours. A litre of very bloody fluid in the peritoneum—hæmorrhage thought to be the cause of death. About three-fifths of the liver had been removed. The state of the liver and presence of amyloid vessels suggested that syphilis was the cause of the trouble.

Langenbuch (*Berl. klin. Woch.*, 1888) removed 73 grm. of a "tied-off" lobe; hæmorrhage occurred, and he re-opened the abdomen and stopped it. **Hochenegg** (*Wien. klin. Woch.*, No. 12, 1890) removed a localised cancer, and treated the pedicle extraperitoneally. **Lauenstein** had removed a large mobile mass from the lobus Spigelii, the patient dying on 12th of sepsis. **Tillmanns** diagnosed as a tumour a large syphiloma. He drew it out, healed the abdominal wound, and then removed the mass with the thermo-cautery. **Ziesssen** protested against the removal of these lobulated syphilitic masses, which, he said, would go down under treatment. **Hansemann** thought that amyloid vessels in such cases would render the danger of bleeding specially great.

Terrillon (note in *Brit. Med. Journ.*, Aug. 30, 1890) is said to have successfully excised a piece of liver containing hydatid cysts in a woman of 53.

Arrest of bleeding from the liver.—**Clementi**, at the Assoc. of Italian Surgeons (*Centbl. f. Chir.*, No. 34, 1890), reported that in dogs the ligature and acupressure suffice. The largest vessels can be drawn out with forceps and tied as usual. **Bonnano** (*ibid.*) had found suture of the raw surface with long needles threaded with catgut most efficacious.

Surgical aspects of hepatic abscess.—**R. J. Godlee** (*Brit. Med. Journ.*, Jan. 11, et seq.) Godlee sums up the treatment of hepatic abscess as follows:—

1. Pyæmic abscesses and those resulting from suppurative phlebitis of the portal vein do not call for surgical interference. Should one point, it is opened only to relieve symptoms.
2. Multiple abscesses, associated with dysentery or intestinal ulceration, are very unfavourable for surgical treatment. They must be opened and treated as the single or tropical abscess, because multiplicity cannot certainly be diagnosed.
3. Single abscess of the liver (tropical or not) must, if it approach the surface, be opened with the following precautions:—
 - (a) If it present in the epigastrium, the presence of adhesions must be ascertained before incising the liver.
 - (b) If it present through the chest wall, a spot must be chosen below the normal limit of the pleura. If, by chance, pleura or peritoneum be opened, the serous surfaces must be sutured to each other and to the liver before the latter is incised, to prevent leakage of pus into the serous cavities. A double row of catgut stitches should be used and passed rather deeply into liver substance.
 - (c) Strict antisepsis.

(d) Drainage by a large tube at first. A tube must be retained till the discharge is reduced to a minimum.

4. If an abscess have burst into a neighbouring cavity or viscus, and the position of the abscess can be clearly made out, it must be opened without delay. If only suspected, and the patient is losing ground, the liver must be punctured in the most likely situations. If the whereabouts of the pus is obscure, whether rupture has taken place or not, and the patient is not losing ground, it is necessary to wait.

5. Hydatids of the upper or back part of the liver are to be treated on the same lines.

6. Empyema, pericarditis, and peritonitis, due to rupture of a hepatic abscess, must be treated on general principles.

Chronic obstruction of the common bile duct by gall-stone.—W. Osler (*Annals of Surg.*, March, 1890).—These cases are characterised by the following group of symptoms:—1. Jaundice of varying intensity, deepening after each paroxysm, persisting possibly for months or years. 2. Ague-like paroxysms, after which jaundice usually deepens. 3. At time of paroxysms, pain in region of liver, with gastric disturbance. Unfortunately, obstruction of the common duct for months may not induce these symptoms. Also suppurative cholangitis (generally due to stone in the duct) has similar symptoms, but hepatic tenderness is more marked, paroxysms are more frequent, and fever often irregularly remittent instead of intermittent; jaundice is less intense, does not deepen after the paroxysms, and the state between the paroxysms is not one of such marked relief. Osler thinks that a recognition of the meaning of the above symptom group should lead more often to operative treatment.

Cholecystotomy, cholecystectomy, choledolithripsy.—Mayo Robson (*Trans. Clin. Soc.*, 1890) reports 14 cases of cholecystotomy; 11 for stone, all recovered; 1 for suppuration, recovered, though apparently dying of peritonitis; 2 for distended bladder; 1, due to cancer of head of pancreas, and jaundiced for months, died of bloody oozing from interior of bladder and suture holes.

L. Tait (*Edin. Med. Journ.*, Oct. and Nov., 1889) records 55 cases with 52 recoveries; 1 death from bronchitis some weeks after wound had healed, and 2 from cancer, one of which was much relieved by evacuation of pus. All the rest, with one exception, were in perfect health.

Terrillon (*Mem. de la Soc. de Chir.*, May, 1890) after many futile attempts, succeeded in dislodging a firmly-impacted stone in neck of gall-bladder with a uterine curette. Bile in small quantity began to flow from fistulæ on 8th and on 12th. Terrillon

dissected the bladder from the abdominal wall for 1 cm. without opening peritoneum, scraped away the mucosa with a curette for $\frac{1}{2}$ cm. all round, sutured the bladder with fine silk, refreshed wound-edges and brought them together. Excellent result.

Sänger (*Berl. klin. Woch.*, Jan. 13, 1890) sutures peritoneum to skin, draws out almost the whole gall-bladder, and sutures it to the skin; after two days incises and removes the stone, sutures the opening; repeats the suture if necessary. When the fistula is closed he returns the bladder to the abdomen. [Before doing this we presume that Sängcr makes sure that the stone is not impacted.]

Cholecystectomy.—**Terrier** reports (*Mem. de la Soc. de Chir.*, June, 1890) a case necessitated by impaction of a stone deep down in a very friable bladder. He notes that a median incision would have enabled him more easily to reach the neck of the bladder. Some hepatic bleeding was checked by two sutures. Much bile escaped after operation, gradually ceasing by 5th. Supposes that ligature on neck of bladder cut through at once. He had a glass tube leading from right kidney.

Cholecystenterostomy.—**M. Robson** (*Med. Chir. Trans.*, Nov. 20, 1889).—F., 8 oz. of pus let out of bladder, recovery with fistula; $1\frac{1}{2}$ pint of bile lost daily, which no apparatus would catch, and condition was miserable. Old scar opened, viscera matted, duodenum could not be reached; opening established between bladder and transv. colon, bile and fæces appeared at wound, which granulated and healed in a few weeks, motions becoming normal.

Cholelithotripsy.—**Kocher** (*Corresp. Bl. f. Schw. Aerzte.*, Feb. 15, 1890) quotes a case by Grédé (stone crushed, and fragments were expelled by three efforts with violent colic), and gives one of his own: M., 53, 15 years' history, obstruction incomplete, exact situation of stone doubtful. Two stones, size of hazel-nut, crushed with fingers in the common duct and passed by bowel on 8th day.

22. Surgery of the spleen.

Splenectomy.—**D'Antona**, Italian Surg. Congress (*Centblt. f. Chir.*, No. 34, 1890).—F., 26, malaria six years ago. 3,200,000 red corpuscles in 1 c.mm., white corpuscles normal. Spleen $18 \times 10 \times 5.5$ cm.; weight 955 grms. Good recovery. Red corpuscles rapidly increased after operation.

ORTHOPÆDIC SURGERY.

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I. The treatment of flat-foot.

At the International Medical Congress at Berlin (*Revue d'Orthopédie*, November, 1890), a discussion on the treatment of flat-foot was opened by **Lauderer**. He advocated, in the early stages of the affection, prophylactic measures; when it became painful, exercises and apparatus, and when complicated, osteotomy. **Lorenz** recommended subcutaneous injection of a 5 per cent. solution of cocaine into the astragalo-scapoid joint to overcome the spasm of the muscles. At the end of ten minutes the rigidity of the foot disappears; the foot can then be placed in plaster of Paris in the position of forced supination. After four weeks, massage and exercises should be employed. In severe cases he advised forcible rectification, and even tenotomy. He condemned osteotomy, but permitted removal of the astragalus when this bone cannot be forced back into place. **Dollinger** advised osteotomy or resection of the cuneiform bone only where there is osseous ankylosis following rheumatoid arthritis. **Schreiber** also recommended removal of the astragalus when dislocated inwards. **Trendelenburg** practised supra-malleolar osteotomy (*see* p. 244) in severe cases, and **Hoffa** thought such an operation indicated when, after section of the tendo Achillis, the foot could not be put up in the varus position. **Mosengeil**, believing that the periarticular tissues, the aponeuroses, the ligaments, and the joint capsules are at fault rather than the bones and muscles, recommended massage and apparatus for supporting the arch. **Macewen** stated that he had only once met with a case of acquired flat-foot in which the astragalus was dislocated, and this was the result of a traumatism. All the other cases he had seen had been treated by massage and orthopædic apparatus. **Bradford** agreed that massage and the use of a special sole to the boot is all that is necessary.

A new operation for flat-foot.—**Hare**, in the *Lancet* for November 9, 1889, describes yet another method of treating flat-foot by

operation. In previous volumes of the "Year-Book," the methods of Ogston, who chisels off the cartilaginous surfaces of the astragalo-scapoid joint, and then pegs them together; of Davy, who removes the scaphoid bone; of Stokes, who cuts out a wedge-shaped piece from the head and neck of the astragalus, have been described. Weinlechner and Billroth, in severe cases, have removed the astragalus, and Golding Bird has sawn across the tarsus subcutaneously. Hare performs his operation as follows:—An incision is made on the inner border of the foot, two inches in length, parallel to and immediately below the tendon of the tibialis posticus, and passing directly down to the bone. The inner aspect of the scaphoid and cartilaginous head of the astragalus are thus exposed. The anterior and lower part of the displaced astragalus, and the posterior part of the scaphoid, are removed slice by slice by Macewen's chisel in such a manner that when the astragalus is pressed upwards and the scaphoid downwards they dovetail with one another, the arch being restored. The periosteum of the one bone is sewn to the periosteum of the other by stout catgut, and the wound is closed in the usual way. The foot is placed on a Dupuytren's splint, and retained by this in position. On leaving the hospital seven weeks later the patient could walk easily and without pain. He returned to his usual employment, and has continued to improve since. This operation differs from Ogston's in that the bony surfaces are cut in a zigzag manner, so that they may support each other and not require the ivory peg. The introduction of the latter has in some instances caused the splitting of the bones, and considerable after-trouble. Hare remarks that although Professor Ogston presented last year a *résumé* of forty-seven cases, the operation does not seem to have attracted the general attention that it certainly deserves in the treatment of those forms of pes planus where palliative treatment is of little or no use.

It does not appear that the method of wrenching first described by Mr. Willett in the "St. Bartholomew's Hospital Reports" for 1882, and frequently referred to in former volumes of the "Year-Book," was previously tried in this case, and the Reporter cannot help thinking that if this latter method were more generally known and practised, we should hear of fewer cases in which operations were considered necessary. Another year has elapsed, and he has still met with no instance in the orthopædic department of St. Bartholomew's of a case of flat-foot, however severe, which has not yielded to the method of wrenching.

Open incision with shortening of fasciæ and muscles for flat-foot.—*Phelps* (Transactions of the American Orthopædic Association,

1889, p. 137) makes an incision across the sole of the foot, and through this incision the muscles and fasciæ are hooked up, cut apart, shortened, and again stitched together. The skin is also shortened. The object of the operation is to shorten the girders which hold up the arch.

Such an operation hardly requires any comment.

Supra-malleolar osteotomy for flat-foot.—F. Trendelenburg (*Archiv für klinische Chirurgie*, Band xxxix., Heft 4, p. 751), Hahn (*Centralblatt für Chirurgie*, 1889, Beilage, p. 108), and W. Meyer (*New York Medical Journal*, May 24, 1890), publish articles on the treatment of flat-foot by this method. Trendelenburg has performed the operation seven times on four patients, and says that by its means the arch of the foot is completely restored, and the pain and difficulty in standing and walking are much relieved. The patients on whom he operated were between 16 and 45 years of age. E. Hahn has operated five times on three patients. One was cured, a second improved, and a third made worse. The last was an extreme case, and for such Hahn proposes to combine the supra-malleolar method with that of Ogston. Meyer has operated on two patients. The improvement produced by a supra-malleolar osteotomy in traumatic valgus, the result of badly-set Pott's fracture, led to the performance of this operation in flat-foot. The pain and difficulty in walking in flat-foot due to Pott's fracture are believed by Trendelenburg to be due to the alteration in the longitudinal axis of the leg, causing the line of gravity to be displaced, so that instead of passing through the median line of the foot it is directed nearer to the inner side of the foot, or even falls to the ground quite internal to the inner border of the foot. In idiopathic flat-foot Trendelenburg thinks the condition of the parts is similar to that in the traumatic cases depending on badly-set Pott's fracture, and was hence led to try a similar operation for its relief. The operation consists in cutting across subcutaneously with a chisel the tibia and fibula just above the ankle-joint, restoring the arch of the foot by manipulation, and placing the parts in plaster-of-Paris with the foot in a slightly over-corrected position. Hahn only divides the tibia, but if this is found insufficient to restore the arch he proposes in addition to perform Ogston's operation on Chopart's joint.

Meyer divided both the tibia and fibula. In his cases the pain at the time they were reported had been quite lost, and the patients were able to walk, the one for about an hour, the other easily and without any support. Meyer concludes that (1) Supra-malleolar osteotomy seems to be the most rational operation for the radical cure of flat-foot, as its object is to correct the

deformity without interfering with any of the tissues of the foot proper. 2. In far-advanced cases it may advantageously be combined with Ogston's operation. 3. If osteotomy has been performed, the position of the foot can be easily corrected or over-corrected. 4. The tibia and fibula should be cut close to the tibio-tarsal joint, and the latter not injured. 5. As soon as the foot is pressed into a normal position it will be seen that the arch is completely restored. 6. Between the tenth and twelfth days the splint should be removed, and the position of the foot re-examined, and, if necessary, definitely corrected. 7. The patient may get up in about five to six weeks after the operation. 8. A slight over-correction may be advisable to guard against recurrence and the necessity of temporarily wearing a supporting brace.

In his conclusions, Dr. Meyer says, under No. 5, that on pressing the foot into its normal position the arch is completely restored. It would be interesting to know if an attempt was made to thus restore the arch under an anæsthetic before the tibia and fibula were cut across. The Reporter on several occasions has had patients with very severe degrees of flat-foot brought into the operating theatre for the purpose of doing Ogston's operation, but in every instance found that when the patient was under the anæsthetic the arch could be restored by forcibly pressing the foot into position. In these cases there was, before the restoration of the arch by pressure, apparently an alteration in the shape of the bones, but such apparent alteration quite disappeared on the forcible reposition of the parts. In undertaking this operation, moreover, it should not be lost sight of, as remarked by Dr. Abbé, who was present at the Surgical Society of New York when Dr. Meyer's cases were shown, that there was considerable, and to some extent unsightly, deformity remaining. After the operation Dr. Meyer himself admits that it is of course possible that the pain and deformity may again return when the patients resume their former laborious employment.

Exercises in the treatment of flat-foot.—Ellis (*Edin. Med. Journ.*, Jan., 1890) lays down the guiding principles which have directed his treatment of flat-foot for many years, and which he says he has never before fully formulated:—

The foot is supported not only *in*, but also *by* the exercise of its functions. The muscles, which by action move, in action sustain the structure. In early life they also develop the form.

Muscles developed by action tend to remain taut and firm when not in action, and so, by keeping up continuous pressure, modify the bony contours.

In good walking, the heel is raised from the ground by the calf muscles and by the long flexors acting with the peronei and tibialis posticus at the same time.

While the long flexor muscles press the toes against the ground, they tend to lift up the heads of the metatarsal bones (forming the anterior pillar of the arch), which thus dance, so to speak, on tight-ropes. Injurious pressure against the ground is thus prevented when the weight is borne by the anterior pillar only.

This same action relieves all strain on the ligaments beneath the tarsus, while drawing the two pillars towards each other and throwing the arch upwards, just as tightening a bow-string increases the bending of the bow.

In flat-foot the indication is to promote this bow-string or tie-rod action by vigorously springing to tip-toe, both as a special exercise and in walking. Avoidance of continuous strain on the ligaments, as in careless standing, is also indicated.

While frequent rising to tip-toe during any necessary standing is desirable, prolonged standing, even in the tip-toe position, is not desirable. In this latter case the muscles are wearied by continuous contraction, and the ligaments lose the benefit of intermittent tension. It is the act, the movement, of rising on tip-toe that is beneficial.

As, in order to have free movement upwards, the heel must first completely descend to the ground, heels to the boots should be avoided.

The mechanism of the foot is best adapted for a level surface. The sole of the foot, therefore, must not be thickened on the inner side, as sometimes advised.

As the free bending of the foot necessary for efficient function takes place only, or mainly, at the oblique line of the metatarsophalangeal joints, a thick sole is altogether inadvisable.

The short flexor muscles, acting with the abductors and adductors, play an important part in holding down the proximal phalanx of the first and middle phalanx of each of the smaller toes, while the long flexors act on the terminal phalanges.

The principal object of the arch being, as I contend, to protect these sole muscles from pressure, steel springs, cork or other pads, which press against them, are to be scrupulously avoided.

As the arch is most pronounced and best adapted to sustain weight, and as the muscles for raising the heel and pressing down the toes act best when the toes are directed slightly inwards, the toes should never be turned outwards in standing or in walking.

Free movement of the feet being impossible when the body

rests on their outer edges, standing or walking in that position is not to be permitted.

As muscles when tired tend to as little action as possible, and so to throw extra strain upon the ligaments, all fatigue is to be avoided.

Thus, as I contend, good walking and many forms of work are not only compatible with the cure of flat-foot, but may be used as a direct influence to that end. They who walk well will never be flat-footed, and they who are flat-footed—I am not now speaking of cases of bony ankylosis in the deformed position—may by walking well be cured.

The Reporter, though fully agreeing with Mr. Ellis on the value of exercises in restoring the functions of the foot, and in this way curing the deformity, does not admit all cases can thus be successfully treated. Amongst the class of patients applying in the out-patient room, the deformity has frequently been allowed to assume very severe degrees. The foot is rigid, the peronei tense, the sole convex, and the bones on the inner side markedly prominent, and apparently altered in shape. In such cases patients cannot perform the exercises, inasmuch as they cannot rise to tip-toe, especially if, as is so often the case, there is also present a painful condition of the metatarso-phalangeal joint of the great toe (*Hallux dolorosus*). For such, other treatment than exercises is necessary. The Reporter has found that in all that have come under his notice the rigidity can be overcome, and the bones, even though apparently altered in shape, can be forced back into place by wrenching under an anæsthetic. The deformity, however, cannot even then be considered cured. To obtain such a result, the exercises so strongly insisted on by Mr. Ellis are, in conjunction with proper appliances, invaluable.

2. The treatment of talipes.

A discussion on the treatment of congenital club-foot was opened by Julius Wolff, at the International Medical Congress at Berlin, and carried on by Phelps, Shaffer, Fraiford, Jones, Bidlon, Kermisson, Siegfried Levy, Kapteyn, Bessel-Hagen, and Bilhaut (*Revue d'Orthopédie*, Nov., 1890). Wolff advocated progressive rectification by means of silica apparatus, and affirmed that when relapses occur, they are the result of the treatment not being carried out for sufficiently long periods. Shaffer recommended forcible rectification at intervals, aided, if need be, by tenotomy. Bradford considered forcible rectification in itself sufficient, and that tenotomy, even in severe cases, was never necessary. Bédard also spoke in favour of forcible rectification. Phelps considered his cutting operation ("Year-Book" for 1884, p.153) less dangerous

than the tearing of the tissues which occurs during forcible rectification. More than four hundred cases had now been treated by his method, which he considered was entirely devoid of danger. He had never seen atrophy of the muscles follow his open incision. Kermisson had done Phelps's operation twelve times, and spoke of it most favourably for inveterate cases. Levy also upheld Phelps's method. He believed that when great force was used in wrenching, there was a danger of hæmarthrosis of the small joints of the tarsus and atrophy of the musclea. Kapteyn was an equally warm advocate of Phelps's incision, but in some cases cuts, in addition, the deltoid ligament, by making a semi-circular incision around the internal malleolus. Ridlon modified Phelps's incision by making a longitudinal cut along the inner border of the foot, and a second oblique cut corresponding to the cutaneous fold in front of the internal malleolus. Bessel-Hagen advocated a longitudinal instead of a transverse incision, since the latter has a tendency to gape during the subsequent rectification of the foot. It permits, moreover, of the easier application of sutures, and, he thinks, expedites healing. On the other hand, Jones spoke against the operation. He considered it must be followed by rectification, and that the wound therefore in the foot was an unnecessary complication. Julius Wolff also held that Phelps's operation was unnecessary, in that he maintained, even in the most severe cases, after subcutaneous tenotomy, the foot could be completely restored by forcible rectification. Bilhaut drew attention to the good that could be done by massage, if undertaken immediately after birth.

Cases of equino-varus treated by osteotomy.—Davy showed at the Medical Society of London (*Lancet*, March 1, 1890) a girl, the subject of double congenital equino-varus, who had submitted to osteotomy of the transverse tarsal joint in preference to amputation of the feet. From the right foot he took part of the os calcis and head of the astragalus, four outer metatarsal bones, and the whole of the scaphoid, cuboid, and cuneiform bones; from the left foot, parts of the internal malleolus, os calcis, astragalus, three cuneiform bones, the bases of the fourth and fifth metatarsal bones, and the whole of the scaphoid and cuboid bones. This case was a duplicate to one he had in his practice three years previously. Both patients came to him walking on hands and knees, and, he takes it, were typical of a class who had hitherto been subjected to amputation. They could now wear ordinary boots, and walk well enough to engage in ordinary occupations. The operation of excision of the transverse tarsal joint had been performed 45 times by Mr. Davy, with only one death.

Fairbank (*Brit. Med. Journ.*, Dec. 14, 1889) gives the after-history of two cases operated on by him two years and two years and a half previously. The result in each case was satisfactory.

Acquired talipes calcaneus cured by operation.—Strachan (*Brit. Med. Journ.*, Nov. 30, 1889, p. 1244), showed a patient, at the Jamaica branch of the British Medical Association, who had received an injury to the front ankle-joint two years and a half ago, resulting in a large ulcer. On admission, there was a dense cicatrix in front of the ankle-joint and instep, adherent in many places to the subjacent bone; the extensor tendons were atrophied, matted together and contracted. The foot was in a condition of extreme talipes calcaneus; the patient walked with great difficulty on the heel. The operation consisted in dividing all the tendons, dissecting the cicatrix off the bone and other tissues where adherent to them, and then dividing the cicatrix just opposite the ankle-joint by a V-shaped incision, the apex of the V lying on the instep. The anterior ligament of the ankle-joint was laid bare, and some of its fibres divided, but the joint was not opened. The foot was then brought into its normal position. The immediate result was the formation of a large, roughly diamond-shaped raw surface, which was left to granulate up. This it did most satisfactorily. Skin-grafting was successfully performed on several occasions, and aided in the cutification of the surface.

Splint for foot-drop.—Roth (*Lancet*, Oct. 26, 1889) has devised a new elevating spring for foot-drop. It consists of a curved steel rod moulded to the leg below the knee, and fixed to the calf by a transverse leather band. It is fastened on the back of the heel of the boot. The advantages over the ordinary side-elevating spring and elastic retractors are that it is more simple and durable, that it is less noticeable, that it is not so liable to catch the dress, and lastly, that it is cheap.

Immediate reduction of deformity after tenotomy.—Noble Smith (*Lancet*, March 15, 1890) publishes successful cases treated by immediate reduction, a method now known and appreciated by the majority of both general and orthopædic surgeons.

3. The operative treatment of paralytic deformities.

Karawski, in an interesting paper in the *Deutsche medicinische Wochenschrift*, January 23, 1890, discusses the indications for operations on the joints for deformities the result of spinal paralysis. He divides these operations into two groups—those that aim at leaving the patient with a movable joint, and those that aim at leaving him with a fixed joint. 1. The operation which leaves the joint movable is only applicable to the hip-joint, and then only for the class of cases known as spontaneous or paralytic dislocation

of the hip. Karewski has operated on six such cases. He lays the joint freely open, detaches the muscles from the trochanter sufficiently to allow of the dislocation being reduced, and then forces the bone back into the acetabulum. In one case the acetabulum was too small to re-admit the head of the bone. Here he enlarged it sufficiently by gouging. He claims for all these cases union by the first intention, and successful results. 2. The indications for obtaining a fixed joint differ somewhat, according to whether the upper or lower extremity is affected, and according to the muscles involved. No operation should be done until a year or even longer has elapsed, to make quite certain that no further improvement can be hoped for by the use of galvanism, massage, &c. The treatment is more applicable to the upper than to the lower extremity (if we except the foot), in that it is nearly always possible as a rule by the use of mechanical apparatus, to obtain sufficient support to allow of walking, even when both sides are paralysed. In brachial monoplegia, in which the muscles of the forearm and hand are intact, the elbow should be fixed when there is complete paralysis of both flexor and extensor muscles; but so long as some power, however slight, of either extension or flexion is present, the paralysis can be overcome by an elastic tension apparatus taking the place of the paralysed muscles. When the shoulder-muscles are paralysed, the shoulder-joint does not admit of mechanical appliances, in that such merely render the parts fixed. For these cases, in which there is usually great laxity and spontaneous dislocation of the head of the humerus, anchylosis of the shoulder-joint by means of excision is indicated, since, after the head of the bone has been fixed to the scapula, the scapular muscles can be made, not only to rotate the arm, but to abduct and adduct it. Karewski does not advise fixation of the hip, in that, when the foot and knee have been rendered rigid, the patient is always able to progress, the movement of the pelvis compensating for the paralysed hip. In paralysis of both lower extremities, he admits, however, that it is a question whether the fixation of the hip might not be of service, in order to allow the patient to assume the upright position. For the knee he recommends fixation: 1. When there is total paralysis of both lower extremities; in this case both knees must be excised, in order that the whole weight may not be thrown on the one knee and deformity from yielding of the limb result. 2. When there is a flail-like condition of the limb with marked genu recurvatum. 3. When there has existed long uncorrected contractions of the knee-joint, with consequent alteration in the articular surfaces.

In the foot, Karewski recommends fixation: 1. In cases where

in consequence of the frequent formation of sores over the malleoli, appliances cannot be worn; and, 2, in those cases where after tenotomy and rectification the foot becomes flail-like and of little use, requiring the constant use of expensive supports.

After these operations, Karewski maintains that the limbs become better nourished, that they have a tendency to keep pace in their growth with the sound limb, and that, since the excisions are performed on a healthy joint, the epiphyses are not completely removed, and consequently the same shortening from absence of epiphysal growth is not to be expected as so frequently happens after excision for joint disease.

Forest Willard (*Revue Orthopédique*, Nov., 1890) read a paper on this subject at the Berlin International Medical Congress. His conclusions were as follows:—1. Deformities following infantile paralysis are the result of negligence, and may be prevented by the timely use of suitable means and apparatus. 2. When there is dislocation the lower limbs should be placed in the most advantageous position for sustaining the weight of the body. 3. Rectification may in many cases be obtained by apparatus, but this method is fatiguing and painful, and operations are preferable. Time is gained by them, and a member as strong and as useful can be obtained as when an apparatus is used. 4. Surgical intervention consists of tenotomy, myotomy, aponeurotic section, forcible rectification, followed by extension in the horizontal position; multiple tenotomy of the flexors of the thigh, of the leg and of the foot, is often necessary. 5. Mechanical means have for their object—(a) To prevent the recurrence of the deformity; (b) to support the weak members; and (c) to sustain the body weight. It must not be lost sight of, in employing apparatus, that troubles of circulation and nutrition may occur. 6. Excision is sometimes necessary, a stiff limb being preferable to a useless one. 7. Osteotomy and amputation are sometimes necessary. 8. From the moment a patient can sustain himself on crutches, he should not be let crawl or remain in bed.

4. The treatment of Dupuytren's contraction of the palmar fascia.

Macready (*Brit. Med. Journ.*, Feb. 22, 1890) compares the relative merits of the subcutaneous with the open operation in the treatment of Dupuytren's contraction. In eight cases of phalangeal contraction treated by open incision there were three successful cases, four partially successful, and one total failure. In four cases of palmar contraction thus treated there was one bad result. It is evident, therefore, he says, that the restoration of function is not generally complete by this method. For the

successful treatment of Dupuytren's contraction it is of essential importance that the operation employed should correct the flexion of the phalangeal as well as of the metacarpo-phalangeal articulations, and this he argues is best done by the subcutaneous incision. The objection to the latter method is that the fascia is left behind and recurrence may take place. This, according to Mr. Adams, occurs in about 10 per cent. of cases operated on. The operation, however, can then be repeated, whereas after excision of the fascia relapse is irremediable. Other objections to the subcutaneous treatment are that it is unable to correct gouty deformities of the joints, or to divide the bands when they have undergone calcareous degeneration. But no operation will restore joints damaged by gout, and calcareous degeneration of a part of the fascia must anyhow be dealt with by excision. The after-treatment of the subcutaneous operation depends upon whether the case is palmar or phalangeal. In the former, the ordinary soft metal splint is used throughout, bent to the fingers and gradually extended. The phalangeal cases are best treated by a dorsal splint with rack-and-pinion movements over the finger-joints. In all cases extension should not be made at once, or pain is produced, but after a lapse of four or more days, and should be continued for a week or more after full extension has been obtained. Mr. Macready says: "The common advice in books on surgery is to use the subcutaneous operation in slight cases, and the open operation in severe ones." He submits this advice might well be reversed, and that the open treatment should be confined to palmar cases, if indeed there is ever any justification for recommending the open operation. With certain exceptions, and when due precautions are taken, the subcutaneous operation may be trusted to be successful. No matter how far advanced in life the patient may be, nor how severe the contraction, he may be promised complete restoration of function without pain, without danger, and without one hour in bed.

Adams read a paper at the Medical Society of London (*Brit. Med. Journ.*, March 29, 1890) on this subject. He prefers the subcutaneous division of all the contracted bands of fasciæ that can be detected by as many punctures as may be necessary, followed by immediate extension as rapidly as it can be carried out without causing pain. Notwithstanding the success of this operation, some English and American surgeons show a disposition to return to the old method of open wounds. The open-wound operation is totally inapplicable to the case of phalangeal contraction, and when this operation is performed, if relapse should occur from cicatricial contraction, the case becomes hopeless.

The subcutaneous operation can be repeated with as much success as at first. In the after-treatment, Mr. Adams, in all cases of phalangeal contraction, still uses the steel instrument fitted to the dorsal aspect of the hand, with prolongations along the contracted finger or fingers, having joints corresponding to the phalangeal articulations, movable by rack and pinion. In cases of simple palmar contraction this instrument may be dispensed with, and a padded metal splint, capable of being bent to any curve, and altered from day to day, may be applied. Mechanical extension should be maintained for three weeks, night and day, allowing only a little passive movement, and then gradually discontinued during the day, but maintained at night for several months by a simple form of retentive splint.

5. The treatment of congenital dislocation of the hip.

Ridlon (*Med. Record of New York*, Nov. 16, 1889) reports a case in a girl, aged 10½, treated for one year by continuous traction on the old-pattern Taylor's extension hip-splint, the leg being elevated on an inclined plane. No relaxation was permitted during the whole of this time. The inclined plane was gradually lowered and removed in about six weeks. The head of the femur was found displaced upwards and forwards, lying almost immediately below the anterior iliac spine. When she first came under treatment she walked with a very decided limp, the right leg was rotated outwards, the thigh flexed on the pelvis, and the lumbar spine lordosed, with the great trochanter two and a half inches above Nélaton's line. It required a block under the right foot of three inches. The joint could not be extended or rotated outwards. At the end of the treatment by extension the difference between the length of the limbs had been reduced to half an inch. A jointed splint was then applied and the patient allowed to get up. Dr. Ridlon was disappointed, however, at not getting such a result as that obtained by Dr. Buckmaster Brown in his case reported in the "Year Book" for 1886, p. 152.

6. The treatment of genu valgum and bow-legs.

Twenty-seven cases of deformities of the extremities treated by means of the screw-clamp.—**Grattan** (*Brit. Med. Journ.*, May 3, 1890). In the year that has elapsed since the publication of a previous paper on the treatment of deformities by the screw-clamp, Dr. Grattan has operated on twenty-seven cases. "An extended use of the instrument," he says, "has been followed by more experience. At first I found it extremely difficult to break the bones of very young children, owing to their bending. This difficulty has been overcome by approximating the arms of the

clamp. The clamp has proved successful with a girl 14 years and 11 months old, and I doubt if even this is the extreme limit of age at which it may be used." In one instance Dr. Grattan failed because the clamp cracked at the hinge. He immediately had a stronger clamp made, and instead of having the arms rubber-covered had the steel highly polished. He has also had a small racket screwed on the under surface of the clamp, each notch of which corresponds to opening the arms half an inch. By this means he has done away with the necessity of screwing together the arms, and has expedited the operation. He sees no difference between the effects of the rubber-covered arms and the polished steel. He has had no skin wound since he has used the latter; and from his experience of the polished wedge, where the pressure is double that of the arms, there is no necessity for any padding whatever. He now completes all his knock-knee operations by means of the clamp alone; does not jerk the leg inwards, thus preventing any chance of injury to the external lateral ligament of the knee; but after the limb has been broken takes it in his hands and feels that all the fibres of the bone have been torn across, and sets the ends together in their new position. In his last set of cases he used a curved long splint; a Liston splint is fitted to the limb, and is cut across where he expects to fracture the femur. The cut ends are joined by means of a curved piece of flat iron; the splint then somewhat resembles the curved stave of a barrel, and his knock-knee cases are cured with a slight out-bow corresponding to this curve. Bow-legs have also been broken across by means of this steel wedge. No padding whatever has been used, and no skin injury has resulted.

In commenting on Dr. Grattan's osteoclast in the "Year-Book" for 1890, the Reporter stated that the instrument had failed in his hands, and in the hands of a colleague, to break several bones on which it had been tried. Since then he has had the good fortune to be instructed in the use of the instrument by Dr. Grattan himself, and many cases both of knock-knee and bow-legs have now been successfully operated on at St. Bartholomew's in this way. The secret of success would appear to lie in applying the force with great rapidity by screwing home as fast as the hands can possibly work. He can bear out Dr. Grattan's statement that the screw-clamp is a simple, safe, and efficient instrument.

Notes on 100 cases of osteotomy.—Hagyard (*Lancet*, June 14, 1890) reports the result of 100 cases of osteotomy for various deformities, chiefly the result of rickets, and also for mal-united fractures of the femur. No fatal case occurred. Nothing new in the method of operating is reported. The paper is merely

referred to as a further instance of the success of this comparatively modern treatment of deformities.

7. The treatment of joint-disease.

What produces and what prevents ankylosis in the treatment of joint-disease.—Phelps (*New York Medical Journal*, May 17, 1890), to determine whether prolonged fixation of a joint in the treatment of joint-disease will result in ankylosis, performed a series of experiments on dogs. He says, "It has been taught (1) that if a normal joint is fixed immovably for a certain length of time ankylosis will certainly result, and that motion is necessary to preserve the normal integrity of the joint; and (2) that an inflamed joint will become ankylosed if it is not moved." The dogs were kept with certain of their joints absolutely immobilised for five months. They were then killed, and the joints were found quite healthy. He concludes (1) that a normal joint will not become ankylosed by simply immobilising it for five months; (2) that motion is not necessary to preserve the normal histological characters of a joint; (3) that when a healthy joint becomes ankylosed, or its normal histological characters changed, it is not due to prolonged rest but to pathological causes; (4) that immobilisi; a joint in such a manner as to produce and continue interarticular pressure will result in destruction of the head of the bone and socket against which it presses. He advises in fractures about the elbow-joint that the elbow should be placed in plaster of Paris, and kept at rest for weeks, and no passive motion allowed. He maintains that by keeping the joint thus at rest better results are obtained than when passive motion is employed early.

Treatment of hip-joint disease by double line of extension and fixation.—Phelps (*Transactions of the New York State Medical Society*, 1889) believes—(1) that the absolute immobilisation of the joint in hip-disease can only be produced by extension and fixation; (2) that extension in a line with the shaft and the deformity alone is entirely wrong; and (3) that extension should be made in a line corresponding to the axis of the neck. To carry out these views, he applies two lines of extension, one in the axis of the neck and one in the axis of the shaft, and a fixation dressing, keeping the patient until the active symptoms of the deformity have entirely disappeared, and the spasm of the muscles is no longer present. Children are then placed in Sayre's wire cuirass, or the portable bed, with two lines of extension made as follows: A board is cut to correspond to the length and width of the child. This is carefully padded. The child is now laid on the board and enveloped with a plaster-of-Paris bandage, from the feet to the axilla of the thickness of three-eighths of an inch. When

the plaster is set, the front is cut away. This bed can now be lined and a front put on it and lacings put in, or the child can be held in place by means of bandages. As the plaster bandages are rolled on, they should be nailed to the edges of the board, thus making the board and plaster one. This bed will be found to fit better, be much lighter, and more convenient to make than the wood cuirass. Extension is made to the foot-piece, and lateral extension by cutting away the side a little and putting in a staple, to which the bandage is tied. The portable bed possesses nothing superior to the wire cuirass to recommend it, only its cheapness, costing as it does about three dollars; and then a skilled mechanic is not required—any practitioner would be equal to the task. This will enable the mother or nurse to carry the child about, and the hip-joint is perfectly immobilised by fixation and extension applied in the proper lines.

8. The treatment of spinal curvature.

Laminectomy for paraplegia in angular curvature.—**Arbuthnot Lane** (*Lancet*, July 5, 1890) relates a case in which he operated successfully for this condition. The patient was a man aged 32, who had felt pain in the middle of his back for about two years; six months later he noticed a prominence of the spine, which developed into an angular curve, and continued to become more sharply angular at this point. Three weeks before admission, symptoms of paralysis came on. On admission there was a very sharp angular curve, its apex corresponding to the spine of the tenth dorsal vertebra. His right leg lay motionless in bed, the foot being extended and adducted by the contraction of the muscles of the calf. The resistance offered by these muscles prevented the foot from being flexed to a right angle. When flexed as much as possible, the patient could extend it slightly by means of the flexor muscles. He could not flex the knee, but if the knee were placed in a position of flexion he could forcibly extend it; he could also adduct the thigh upon the pelvis. He could not voluntarily contract the extensor muscles of the leg. He did not notice any loss of power of the left leg, but there was some apparent paresis of the extensor muscles of the leg. The patellar reflexes were much exaggerated on both sides, and ankle clonus was also present. The symptoms steadily progressed, and a fortnight later anaesthesia and analgesia were almost complete on the right side up to the distribution of the ilio-inguinal and hypogastric nerves; above this sensation was impaired for an interval. A month later he was put under chloroform, and the soft parts were turned off the laminae and spinous processes of the ninth, tenth and eleventh vertebrae. These were removed with bone-forceps, when a large mass of

granulation tissue, resembling in appearance and structure tubercular synovial membrane, protruded. This contained in its centre about eighty minims of purulent material. It could be scraped off the dura mater, which was quite intact and healthy. The wound was closed, and two drainage tubes inserted. He gained power in both legs with rapidity, sensation apparently improving in the same proportion. Corresponding with the increase in power and sensation, the reflexes became less exaggerated. During this period he suffered severely from cramps in his legs. At the time of the report, a month later, he had lost his exaggerated reflexes, he had completely recovered sensation in the lower part of his trunk and in his legs, and he could move his legs freely and with much force. He was waiting till the spinal column had consolidated, to be fitted with a suitable poro-plastic support. Recovery was in his case most complete.

The value of the jury-mast.—Marshall (*Brit. Med. Journ.*, May 24, 1890) records his experience of the help obtained by the "croquet hoop" jury-mast at the Children's Hospital, Nottingham. He has used it since 1884, and has found it to be preferred to the ordinary Sayre's jury-mast which he had used previously. The support is more thorough, and the patient has the additional advantage of being able to lie down with comfort.

A new chair-support for spinal curvature.—Steele (*Brit. Med. Journ.*, June 28, 1890) has introduced a simple appliance for lateral curvature which can be fitted on the patient's chair, and made use of at will. A jury-mast capable of being raised or lowered is fixed to the back of the chair, with cross-bar (also movable), head-straps and arm-loops, which are stiffened for supporting the axillæ, and rendered elastic by being connected with the cross-bar by indiarubber rings. A strap can be used if required to adjust the loops to the width of the shoulders. This chair affords much relief to the patients, and at the same time enables them to read, work, and write freely. It is suitable for those cases, especially in elderly people, where plaster-of-Paris or felt corsets are undesirable or will not be endured.

Treatment of lateral spinal curvature by rachilysis.—Barwell (*Lancet*, March 15, 1890, p. 601). How to overcome the ligamentous resistance which keeps the spine in the laterally curved form when once the ligaments have become thickened and shortened has always been a difficult problem. Barwell deals with it in the following manner: At the sides of the room he fits an arrangement of rings and hooks from which the force works. One padded band, with loop attached, is placed on the apex of the lumbar curve; the patient is inclined over against the restraint of

the band until the curve is annulled or reversed, and the trunk is held in that position by a lanyard under the left axilla. Another belt with the loop in the contrary direction is placed on the apex of the dorsal curve. A system of pulleys is hitched to the loop, a wooden strut being placed between the laps of each band so as prevent constriction. The process is quite painless. Cases thus treated have shown great and rapid improvement, and in one case almost complete rectitude was produced in about thirteen months.

9. The treatment of torticollis.

Spasmodic torticollis treated by nerve-ligature.—Mayo Collier (*Lancet*, June 21, 1890). In this case the affection had been in progress for six years. The head was so extremely rotated as to bring the left ear with sudden jerks into a line with the sternum. This took place every few seconds, not altogether ceasing, although less violent, during sleep. Various drugs, galvanism, blisters, galvano-cautery to the back of the throat, and excision of the tonsils had been tried without relief. It was decided to ligature the nerve. The spinal accessory nerve was found where it emerges from the outer border of the sterno-mastoid. Mr. Collier took the nerve as a guide, and tunnelled through the muscle for some distance, using a moderate amount of traction on the nerve, but avoiding injury as far as possible to the muscle. He then placed a loop of silver wire round the nerve as high as he could reach, just twisting the ends to ensure slight compression. The wound was treated in the usual way, with the ends of the loop protruding. On recovering from the chloroform the spasms had entirely ceased. The wound subsequently healed by first intention. There was no return of the spasm at the end of three months. There was nothing apparently amiss with the sterno-mastoid or trapezius. The patient could rotate her head and retain it in any position. The ends of the loop were cut off and the skin allowed to grow over them. A year later she still remained well and free from her former trouble.

Spasmodic torticollis treated by excision of a portion of the spinal accessory nerve.—Noble Smith (*Lancet*, June 28, 1890) has lately operated on a case of very severe spasmodic wry-neck by excision of a portion of the spinal accessory nerve, and also at a subsequent operation by excision of portions of the posterior branches of some of the cervical nerves, as there was spasm of the rotators on the opposite side. The result of these operations was perfectly satisfactory as regards the spasms, and left no appreciable difficulty in the movements of the head, the patient being able to rotate and retain the head in any position she pleased. Mr. Smith cut down upon the spinal accessory in front of the sterno-

mastoid, which seems to him a more satisfactory proceeding than following it through the muscles from below.

Treatment of torticollis by open incision of the tendon of the sterno-mastoid versus subcutaneous tenotomy.—Owen (*Lancet*, Feb. 8, 1890), Phocas, Kermisson, Berger, Verneuil, Jalaguier, Lucas-Championnière, Quénu (*Soc. de Chir.*, June 25, and July 2, 1890). Owen strongly recommends the open incision, and reports a case in which he employed it successfully. He was induced to do the operation in consequence of having wounded a vein and admitted air into it during the subcutaneous method. The advantages and disadvantages of the open incision were discussed at two consecutive meetings of the Société de Chirurgie. Phocas, Kermisson, Championnière and Quénu strongly advocated it. Jalaguier gave it partial support, considering it advantageous in certain cases, whilst by Berger it was condemned. Verneuil advised the subcutaneous method when the sternal portion of the muscle is affected, the open when the clavicular portion is at fault. The advocates of the open incision maintain that it is devoid of danger, that it is easier of performance, that with the use of antiseptics it leaves only a linear scar, and that the results are more perfect. On the other hand, the advocates of the subcutaneous urge that even when the best results are obtained by the open incision, a permanent scar in the neck always remains, and that if the subcutaneous operation is done just above the clavicle the danger of wounding the deeper veins need not be feared.

When the sterno-mastoid is prominent, the scaleni are not affected, and the subcutaneous division is carefully and properly performed, the subcutaneous appears to be the better operation, especially in girls, in that it practically leaves no scar. The Reporter has employed both methods. As far as the safety of the subcutaneous operation is concerned, much depends upon the way in which it is performed. If after making the preliminary puncture extending well into the sheath of the mastoid, a director is carefully insinuated behind the tendon, between the muscle and the posterior layer of its sheath, and the tendon then divided by a blunt-pointed tenotome cautiously slid upon the director, the operation is attended with no danger. If the clavicular portion requires division as well, it can be as safely divided by passing a director behind it in a similar manner. As to the efficacy of the operation, if after the tenotomy the contracted sheath and subjacent cervical fascia are well stretched by forcibly manipulating the head, and the neck is afterwards kept in the restored position, while the gap between the divided muscle is being filled with new tissue, the results are as good as after the open method.

SURGICAL DISEASES OF CHILDREN.

By EDMUND OWEN, M.B., F.R.C.S.,

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IN the last "Year-Book" we had the pleasure of directing attention to the first volumes of two important works dealing with surgical diseases of children, namely, Dr. Henoch's "Lectures on Children's Diseases," and the "Cyclopædia of the Diseases of Children," edited by Dr. Keating, of Philadelphia. Since then the second volumes have duly come to hand.

Though Dr. John Thomson's translation of Henoch's Lectures is concerned chiefly with the medical side of the question, still it contains a large amount of valuable surgical matter. In connection with the subject of cancrum oris, Henoch remarks that no significance can as yet be attached to Jordan's* observations on the presence of moving micro-organisms in the blood. As regards treatment, Henoch puts on one side fuming nitric acid and glacial carbolic acid—two favourite remedies in England—and advises the use in every case of Paquelin's thermo-cautery.

When dealing with the subject of the white fragments of false membrane which sometimes occur in abundance about the fauces of children with simple sore-throat, he advises caution and delay in making a diagnosis, isolating the child in the meanwhile. "Very many cases are put down off-hand by superficial observers as diphtheria which are nothing but severe cases of catarrhal sore-throat. The wonderful results of many physicians who say they have cured almost every case of diphtheria with chlorate of potash and other drugs are really to be explained in this way." [This suggestive sentence will probably fail to attract the attention of that class of practitioners—in England as well as in Germany—who are in chiefest need of being influenced by it.]

In every case of chronic constipation, the practitioner is advised to make a careful inspection of the anus. "On examining the anus in such cases we usually find one or more narrow red fissures in the folds where the skin passes into mucous

* *Lancet*, 1877, ii., 538. Ranke (*Jahrb. f. Kinderheilk.* xxvii., S. 309).

membrane. The painful contractions of the sphincter ani, which arrest defæcation, are due to reflex irritation arising from these fissures." *

The remarks upon intussusception are important, and, whilst recording several cases of recovery, he says, "I should, therefore, even though the proceeding is not invariably successful, always recommend the trial of iced water enemata every one or two hours." He also gives the alternative treatment (which has been carried out with such marked success by Dr. Cheadle).†

Dr. Cheadle, it may be remembered, spoke of the "apotheosis of abdominal surgery" in connection with the more modern treatment of intussusception, and Hemoch reminds us that though in these desperate cases laparotomy has been often performed, the operation has very rarely proved successful. [A valuable series of references to successful cases is here given.]

Abdominal tuberculosis, abdominal tumours, diseases of the genital organs, diphtheria, and diseases of the skin, are amongst the surgical subjects which are passed in review. Altogether this second volume completes a valuable addition to the publications of the New Sydenham Society.

The second of the four volumes of Dr. Keating's "Cyclopædia" contains upwards of a thousand royal octavo pages, and opens with an account of diseases of the skin to which no less than nine authorities have contributed. The article on diseases of the nose is compiled by seven practitioners, and that dealing with diseases of the mouth, tongue, and jaw has been built up by five. The volume is best described by the word "full."

Turning to the subject of diseases of the mouth, we find an excellent article written by Dr. W. W. Allchin, which deals in a masterly manner with—amongst purely medical affections—cancrum oris, ranula, and dermoid cysts. The only fault which we have to find with this part of the book is that the eminent Physician to the Westminster Hospital has been described under incorrect initials.

Selected Subjects in connection with the Surgery of Infancy and Childhood was the title of the Lettsomian Lectures delivered at the Medical Society of London at the beginning of the year by Mr. Edmund Owen. They deal chiefly with the subjects of enlarged lymphatic glands and their treatment by operation, congenital cystic hygroma, hare-lip, dermoid cysts, wry-neck, vesical calculus, incontinence of urine, and inguinal hernia.

* Betz has ascribed like symptoms to eczema of the anus. (*Memorabil.* iv., Lief. 12.)

† "Year-Book," 1886, p. 156; and 1890, p. 192.

1. Cleft palate.

Prof. Billroth's (*Centralblt. für Chirurg.*, March 29, 1890) method of operating is described by Dr. F. Salzer.

Prof. Billroth, disappointed with the results as regards improvement of speech after operations upon cleft palate in little children, has of late been confining his operations to children above 14 years of age. Instead of dividing those muscles of the soft palate which prevented due approximation of the denuded edges of the cleft, he removes tension by detaching and shifting inwards the internal pterygoid plate and the hamular process:—

An A.C.E. mixture administered by Junker's apparatus is used for anæsthesia. The edges of the cleft of both the hard and soft palate are vivified, and bleeding is controlled by the use of gauze tampons. After the lateral incision has been made along the inner border of the alveolar process, backwards from the first bicuspid tooth, a chisel is introduced at the hinder end of the wound, and by a few strokes in a direction upwards and backwards, the internal pterygoid plate is detached at its root. The process and its connections are then so far shifted inwards that the edges of the wound in the soft palate come easily together. The flaps of muco-periosteum are held in approximation by a couple of "mattress-stitches," the edges being subsequently adjusted by finer sutures. The mouth and nose are then irrigated with a 3 per cent. solution of salicylic acid, and the lateral wounds are plugged with iodoform gauze. These tampons Billroth considers to be of great importance, in that they are antiseptic and styptic, and that they keep the parts immobilised and prevent the occurrence of tension; they should be left *in situ* for about ten days.

This is a very valuable and suggestive paper, and will well repay perusal by the operating surgeon.

Since seeing Dr. Billroth's modification described, I have in two instances followed it. In each case a wide cleft involved both the hard and soft palate of young children. The manœuvre is easily accomplished. The tensor palati at once becomes loosened, and, with the dropping of the hamular process and the soft palate generally, the palato-pharyngeus is at once made slack. In the first of my two cases, a complete union was effected from incisor teeth to uvula. In the second case, the hinder part of the uvula failed to unite. The ages of the boys were respectively $7\frac{1}{2}$ and 9 years. As to how far the results were influenced by the modification adopted it is impossible to say. It is not improbable that operators may deem the little osteotomy superfluous. At any rate the suggestion is ingenious. It has a sound

anatomical basis, and, as shown in our own experiments, it at least does not interfere with success.

Mr. Davies-Colley (*Brit. Med. Journ.*, Oct. 25, 1890) has described an original operation for the closure of cleft of the hard palate. Briefly, it consists in bridging the cleft obliquely by a flap detached from before backwards. The raw surface of this muco-periosteal flap is applied to a raw surface upon the other side of the cleft by turning inwards, like the page of a book, a narrow flap of muco-periosteum, which has been previously prepared and secured by sutures. The paper is illustrated by three diagrams, which explain the design of the operation at a glance.

The advantages claimed for the operation are :—That there is less hæmorrhage, for that on the one side of the palate very few vessels are wounded, while on the other side the incision does not extend as far back as the foramen for the large descending palatine artery. That the parts can be cleanly dissected back without much bruising. That nothing is cut away. That there is very little tension after the operation. That the upward pressure of the tongue, which so often causes separation of the flaps when the ordinary operation has been performed, especially in young children, is here beneficial; when the mouth is closed the tongue acts as a splint to keep the flap in its proper position, and press it firmly against the raw surface upon the other side. That the bridge is a very strong one, consisting as it does of two layers of muco-periosteum united by their raw surfaces. That the operation can be performed with success at a much earlier period than the ordinary operation. That it is easy by these means to firmly unite clefts of the hard palate in infants between the age of one and two years.

The disadvantages of the method are that the hard palate alone is united, and that a foramen is generally left at the front part of the cleft. This, however, either disappears, or it can be closed in later life.

2. Tonsilotomy.

M. Dufesoy (*Gazette des Hôpitaux*, July 29, 1890).—In France there is apparently a widespread objection to the performance of amputation of enlarged tonsils, on the ground of serious hæmorrhage, or of other accidents. The result is that ignipuncture has been largely employed—a method of treatment which has taken a far firmer hold there than it has on the English side of the Channel.

With the view of discovering to what extent grave risk was associated with the cutting operation, Dr. Gouguenheim addressed a series of questions to certain European practitioners, and has condensed their replies in a letter which is inserted in the Thesis

which M. Désiré recently presented before the Faculté. One English physician remarked that he had performed more than 2,000 tonsilotomies without a single accident. Another stated that for twenty-five years he had practised at least 200 amygdalotomies annually. This response gives the round figure of "at least" 5,000 operations, and with only two insignificant accidents. "This grouping of opinions shows how little esteem (out of France) operators have for ignipuncture, which they term cruel and 'barbarous.' They also show that the accidents of tonsilotomy are exceptional." A preliminary cooling of the tonsil by the repeated swallowing of ice is advised, but no mention is made of the value of cocaine both to patient and operator.

3. Diphtheria.

M. Saint-Yves-Ménard has brought the subject of contagion before the Société de Médecine Publique (*Gazette Médicale de Paris*, May 3, 1890). He cited instances in which children have been found looking after poultry which were affected with diphtheria without themselves being attacked. Nevertheless, this opinion, supported though it is by MM. Lucas-Championnière and Napias, needs further support ere all doubts and fears upon the question can be dissipated. Reference on this subject should also be made to "Notes on Diphtheria in Animals and in Man," by Dr. Davison, who watched an outbreak of diphtheria in Buenos Ayres (*Brit. Med. Journ.*, Oct. 25, 1890).

M. Roux, at the Berlin Congress (*Gazette des Hôpitaux*, Aug. 12, 1890), insisted upon the need of bacteriological investigations for the prompt and sure recognition of diphtheria, and also in order that the practitioner may be able to assure himself that there are no septic germs lurking in the mouth after the attack has passed away. He also advised that everything that has been in contact with the patient should be thoroughly disinfected by boiling-water or by dry heat; and even went so far as to say that parents visiting their diphtheritic children in hospital "often take back the germs of the disease into their family." For our own part, we have never recognised this indirect method of infection; but if M. Roux is able to point out such instances, more attention should be paid to this matter than usually obtains. It is by no means unlikely that some of the outbreaks of diphtheria in children's wards are caused by parents bringing in infection which they have received from children who are at home sick with "sore throats."

Dr. James Jamieson, of Melbourne (*Trans. Med. Cong. of Australasia*, p. 801), while speculating on the nature of the poison of diphtheria, says:—"We do know that the specific virus is very persistent, and that it may remain long attached to clothing,

articles of furniture, and even walls of buildings, while still remaining capable of exciting the disease in susceptible subjects; and this should always be borne in mind, before we dismiss the possibility of contagion in any particular case." With most others, Dr. Jamieson insists on the importance of dealing with the patches locally, by insufflation or sponging, rather than by any rougher mode of cauterisation. The essay, moreover, once again forces home the evident fact that the application of the operator's lips to the tracheotomy wound is as unsurgical as it is dangerous.

In a suggestive article in the *Trans. of the Amer. Pediat. Soc.*, Dr. Earle, of Chicago, insists upon the importance of prolonged rest in bed in the after-treatment of certain cases of diphtheria. He refers, of course, to those cases in which, during convalescence, symptoms of muscular failure set in. He supplements rest in the recumbent posture by careful dieting, and by the use of strychnia, electricity, general tonics and stimulants.

As a further remark in connection with the ever-interesting subject of diphtheria, I must be permitted to call attention to Dr. Airy's Report to the Local Government Board on an outbreak, in 1889, in the Samford district of Suffolk. The document is dated June 21, 1890; it is eloquent and concise, and might be taken as a model of official sanitary reporting. The district occupies a roughly triangular tract of agricultural country in the south of Suffolk, between the rivers Orwell on the north and Stour on the south, with an irregular base to the west, and a well-defined apex to the east at Shotley Point, where the two rivers join to form Harwich harbour. In one of its sub-districts there had not been registered a single death from diphtheria since the first quarter of 1882. Suddenly in 1889 diphtheria breaks out in a fatal form and kills 15 persons in the sub-district alluded to, a greater number than this disease had killed in 15 years before in the whole Samford district, giving a death-rate for that sub-district of 2.60 per 1,000. "On Friday, May 31, a cargo of London manure was being landed from a barge, and carried in open carts up the lane from Pin Mill to Chelmondiston village, and thence along the high road westward to a farm in the neighbourhood. Several of the village children returning from the school (which stands in the village on the west side of the hollow) complained of the stench from the manure carts. One child, Phoebe Halliday, 5½ years, sickened that same evening; another, William Aldridge, 5 years, sickened next day (Saturday, June 1), and a third, Emily Wood, 4 years, sickened on Sunday, June 2. All three were unmistakable cases of diphtheria, and all three proved fatal."

Again, there was an isolated outbreak in one family in the parish of Erbarton, which abuts on the River Stour, and has its own landing-place, at which cargoes of London manure are occasionally discharged.

In all there were about 75 cases, of which 15 (or 16) were fatal.

This report must prove of more than passing attraction to every practitioner who peruses it. To me, personally, it is of extreme interest, in that I once had under treatment a child who had sickened with diphtheria immediately after passing a cart which was carrying foul London manure along a country lane. The nurse who was with the child said that the stench was abominable. As soon as the child got home she began to vomit; she succumbed to diphtheria, and the mother, who insisted on nursing and kissing her, also fell a victim to the disease. (I have alluded to this and other cases in the 2nd edition of the "Surgical Diseases of Children," p. 15.)

4. Intubation of the larynx in diphtheria.

Mr. W. H. C. Staveley (*Lancet*, November 9, 1889), who has had considerable experience in the treatment of laryngeal diphtheria, reports a series of cases in which he employed O'Dwyer's tubes. The reports, which are evidently free from prejudice, are made with great care. In the third, fourth, and eighth cases intubation "failed to relieve the dyspnoea, so tracheotomy was resorted to, the larger lumen of the tube affording a freer vent."

"After the tube had been inserted, the string was left attached in all the cases except one, the free end being secured to the left temple with a piece of strapping, and not withdrawn, as usually recommended. The advantage of having it attached was found in Case 8, where the tube undoubtedly slipped below the level of the vocal cords, but was readily withdrawn. In one case the string was purposely withdrawn, as the child habitually bit it through purposely after insertion of the tube." [It is certainly fortunate that it was not in this last case that the tube "slipped below the level of the vocal cords."]

"When comparing tracheotomy with intubation, the following is a brief *résumé* of his experience:—With an O'Dwyer's tube, should there be any membrane or collection of mucus exciting cough in a fairly vigorous child, the tube acts as a moderately tight wad, offering just sufficient resistance, so that an energetic cough causes its immediate expulsion, and with it any mucus or loose membrane that may lie below it. Complete relief, which, however, is of very variable duration, follows, due, he thinks, to a temporary displacement of the œdema of

the cords from the pressure exerted by the tube. A tracheotomy tube, on the other hand, being tied in, no effort on the part of the child can expel it, and the removal of the inner tube is frequently insufficient to enable the child to rid itself of the cause of the obstruction, and it is imperative that a skilled nurse or medical officer be within call. The brief time required for the insertion of an O'Dwyer's tube, and no anæsthetic being needed, are points which have been fully dwelt on by others. He is also of opinion that the amount of practice required to intubate fairly rapidly cannot be compared with that required for tracheotomy. Against this, however, is the fact that two assistants are absolutely essential in intubation—one to hold the child, and another to steady the head and control the gag. He does not think too much stress can be put on the importance of the patient's body as well as head being held fair and square before the operator, the head being neither fully extended, which causes the larynx to be so much less easy to reach, nor yet flexed on the sternum. And last, but not least, when dyspnoea imperatively demands relief, and the patient's friends are assured that the operation does not necessitate the use of the knife, their consent is readily and usually cheerfully granted, whereas in tracheotomy consent is often withheld until recovery is at best extremely doubtful.

"Since the above paper was written, five more patients have been intubated for diphtheria by my colleague, Dr. W. W. Ord, and myself, three of whom recovered and two died. This brings the number of cases up to sixteen—seven recoveries and nine deaths. The average age of the fatal cases was under two years, and of those who recovered five years."

Though the Reviewer is of opinion that intubation after O'Dwyer's method cannot do for laryngeal diphtheria all that tracheotomy is able to accomplish, he is watching the progress of the bloodless method of treatment with great interest, and will gladly adopt it whenever conviction is brought home to him. As he holds the opinion, however, that nothing short of the plenteous admission of air early in the course of the disease can afford the diphtheritic child the best chance of recovery, he is unable to adopt intubation. To say that intubation may first be tried, and that if this fail tracheotomy may then be resorted to, is, in his opinion, to deal unfairly with the patient, and to discredit tracheotomy. In his opinion, tracheotomy, though a delicate operation, is not a "dangerous" one, and can better be carried out by the unpractised hand than can intubation; moreover, when the silver tube has entered the trachea much of the anxiety of the case is at an end. The argument which is sometimes advanced

that parents will allow a bloodless operation and refuse consent to a cutting operation, is altogether outside the question ; everything depends upon the way the proposition is placed before them. So far as the Reviewer remembers, he has never known consent refused to the performance of tracheotomy when the surgeon has said, "The operation which is recommended is not a prolonged or dangerous one ; the child being under chloroform will feel nothing of it ; it will surely prevent his dying from imminent suffocation, and it may be the means of saving his life."

Probably life has never been saved by intubation in a case in which tracheotomy would have failed, whereas the very fact of intubation being not infrequently supplemented by tracheotomy shows that the converse of the proposition does not hold good.

An interesting article upon the comparative merits of intubation and tracheotomy appeared in the *Brit. Med. Journ.*, May 24, 1890, from the pen of Dr. G. Hunter Mackenzie.

A report of 100 cases of intubation, with 38 per cent. of recoveries, is given in the same number of the Journal, by Dr. Wm. Hailes, jun., of Albany, New York.

In one of his successful cases he had great difficulty in removing the tube on account of the swelling about the ary-epiglottic folds. "I never had had such serious trouble before in extracting, and began to feel very anxious. The parents were unreasonable, and said, 'You put it in, take it out now.' On the seventh day the last and successful attempt was made. Patient was chloroformed, and a double ligature was passed on each side of the frænum linguæ. In order to draw the tongue well forward and assist in lifting up the larynx a finger was applied to each side of the larynx to raise it still higher, and after repeated efforts we finally succeeded in extracting the tube." Dr. Hailes is, I am given to understand, not the only practitioner who has experienced difficulty in extracting an O'Dwyer tube. It would be a terrible business if a medical man, struggling with a child, in an unsuccessful attempt to get out the tube, should push it "below the level of the vocal cords." Far happier is the lot of that surgeon who confesses to an inability to hit off the glottis when trying to introduce a tube, and who, sorrowful though he be, descends to tracheotomy.

5. Umbilical pyæmia in an infant.

Mr. Clement Lucas (*Lancet*, July 27, 1889) records the case of an infant of four weeks, supposed to be a seven months' child. There was a strong specific history. There was swelling on the front of the chest about the size of a small Tangerine orange ; it proved to be an abscess. The infant died. Subsequently, on opening the

abdomen through the umbilicus, the cicatrix of which was quite sound, pus welled out of the still patent umbilical vein. The whole of this vein was dilated and its walls were thickened, the contents being pus. The prolongation of the umbilical vein to the right lobe of the liver was also filled with pus. There were no distinct abscesses in the liver. The sterno-clavicular joint of the left side was disorganised, and from this an abscess cavity about the size of a large walnut spread downwards.

"That death not unfrequently takes place from suppuration of the umbilical vein in the lower animals as well as in man is pretty generally known ; but the precautions to be adopted to prevent such an occurrence have probably been delayed owing to the natural tenacity of life of the infant and the accustomed security felt by the practitioner that nature will do all that is necessary. I would emphatically protest against this negligence of a past age, and strongly recommend that iodoform or some other antiseptic powder be used above the umbilicus till the cord is detached and the umbilicus soundly healed."

6. Intussusception treated by inflation.

Mr. T. Grant Langhorne (*Lancet*, May 3, 1890).

Reference has already been made to this subject (p. 261), but it may well be supplemented by the following report :—

On January 25th a mother noticed that her infant, nine months, was very sick, and also that it had diarrhoea very badly. The child had been perfectly well in the morning. It strained very much, but nothing passed but blood and slime. On Thursday, the 30th, she sent for Dr. Langhorne, who, being absent, could not attend till Sunday about 11 p.m. He found the child with its legs drawn up, and evidently in great pain. The face was pinched and white, and the feet and hands were quite cold. The abdomen was swollen, tympanitic, and tender. She was sick every few minutes and constantly straining, nothing but blood and mucus passing. "On introducing my finger into the rectum I fancied I could feel something come down when she strained, so I gave her chloroform, and could then distinctly feel the invaginated gut with a well-marked dimple on its anterior surface. My other hand, on the abdomen, made out a well-defined sausage-shaped tumour in the left iliac fossa. The child seemed to be dying ; I determined to try to replace by means of inflation, but with, as I thought, no hope of success, considering the length of time the gut had been invaginated. I took an ordinary pair of bellows, wrapping a piece of oiled rag round the nozzle, and keeping one hand on the abdomen, slowly distended the rectum. After about two or three minutes' gentle blowing, I felt the tumour in

the abdomen suddenly disappear. The child made an uninterrupted recovery. I think this case worthy of reporting on account of the length of time the gut was invaginated (nine days). I should have thought that after nine days adhesions would have taken place, and that any attempt at reposition would prove fatal by rupture. This is the second successful case I have had; the first one I saw on the second day, and used the same treatment. It also shows the great help of an anæsthetic both in the diagnosis and in the treatment, for until the infant was thoroughly under, I could feel nothing definite, and as regards the treatment it is no less important. This case, when taken with other successful cases, will encourage others to try the same treatment before opening the abdomen."

7. Radical cure of hernia.

Mr. Arthur E. Barker communicated a study of fifty consecutive cases of operation for the radical cure of hernia, at a meeting of the Medico-Chirurgical Society, April 8, 1890.

All the cases in the series were operated on for non-strangulated herniæ which were not amenable to other treatment.

The safety of the procedure was indicated by the absence of a single death or ill effect to the structures in the scrotum in any case among the fifty.

True suppuration of the wound occurred only in two cases; the rest healed well.

There were no cases of wound-infection or shock. In two instances the bowels were coughed out during the operation, but no ill effect followed.

The stitches in the skin were usually removed on the tenth or twelfth day; those in the ring were left untouched.

The ages of the patients varied from three months upwards; the numbers for each five years were given, as well as the varieties of rupture met with.

Some of the details of operation were alluded to, and the general subsequent course of the cases during convalescence.

The examination of the question of security against recurrence was then undertaken, and the numbers were given of those which returned.

The author fully admitted the natural tendency to cure in young subjects, and he had made it a rule never to operate without some very special reason. He had often refused to operate when there was reason to think that a cure might be effected by the use of the truss. He pointed out, in reference to the child of three months upon whom he had operated, that it was liable to repeated attacks of strangulation, and the parents were very anxious for

something to be done. In the other young case there had been three successive attacks of strangulation, the last necessitating an operation. On recovery from the operation he had thought it well to prevent the possibility of its recurrence. He agreed that the operation for the radical cure had but a limited application to children. He had come to the conclusion that the silk ligature was the best on the whole. He urged that as the children of the working classes would have to work themselves, it might be well to operate more generally than was at present the custom.

8. Malignant disease of kidney.

Reported from Professor Epstein's clinique, Prague, by Dr. Albert Czerny (*Archiv. für Kinderh.*, Elfter Band, iv. Heft): The child's abdomen had always been somewhat enlarged. There was neither rickets nor tuberculosis. The left side of the abdomen was more prominent than the right, owing to the presence of a smooth, fixed, firm tumour, which extended from under the left ribs to the symphysis pubis. Percussion revealed the presence of intestine between it and the abdominal wall at the umbilicus. The urine was normal. During the next four weeks the tumour rapidly increased in size, reaching across the middle line at the umbilicus; for the latter half of this period only did the child complain of abdominal pain. Professor Gussenbauer removed the tumour, which proved to be a "renal carcinoma." The child died of shock soon after the operation, though the removal was quickly performed, and was attended with but slight loss of blood. Although the ureter was pervious, no pathological evidence was to be found in the urine.

Seibert, who treats of hæmaturia with cancer in the kidney in childhood in a special work, after comparing fifty cases, comes to the conclusion that blood in the urine in cancer of the kidney is found in children (nineteen times in fifty cases) more frequently than in adults; hæmaturia appears most frequently in the third, fourth, and fifth years; and that painless hæmorrhage from the kidney in childhood bespeaks the probability of a carcinoma of kidney.

The Reviewer has recently had a very similar case to that recorded above — similar as regards history, treatment, and, unfortunately, as regards result. Kocher extirpated a renal tumour in the case of a boy of $2\frac{1}{2}$ years, death ensuing in fifty-one hours. Bokai had a like case in a boy of $5\frac{1}{2}$ years, Dr. Reczey being the operator, the child dying in twenty-four hours. Godlee operated in a boy of 22 months, who died of recurrence six months later. Alsberg operated in a girl of 5 years, who died eleven weeks later, owing to a return of the disease, with secondary deposit in the

liver and lungs. Nevertheless, I apprehend that there is a great and a much brighter future for the operation of nephrectomy for malignant tumour of the kidney in childhood. But, before this can be inaugurated, early diagnosis of the disease must be promptly followed by heroic treatment.

9. Extroversion of bladder treated by a new method.

Dr. Paul Segond (*Rep. Congrès Franç. de Chirg.*, 1890, p. 541), in a long essay, describes his method of dissecting the protruding bladder down to the level of the ureters and then doubling it over the wide penile gutter (epispadias). The edges of this gutter are vivified, and to them the lateral borders of the vesical flap are respectively sutured. A transverse incision is then made through the underhanging and redundant prepuce, and, the glans having been passed through this incision, the raw surface is laid over and stitched to the front end of this flap, which has already been described. The edges of the wound which was made by dissecting down the bladder are approximated by sutures, and, if necessary, tension is taken from the integuments by free lateral incision. The wounds are covered with simple boric acid dressings.

The value of the paper is increased by several well-executed illustrations.

The general experience in the plastic surgery of extroversion has been, to say the least, disappointing, but one may fervently express the hope that, under the influence of Dr. Segond's valuable paper, the future may prove somewhat more satisfactory.

10. Incontinence of urine.

At the recent meeting of the International Medical Congress, M. Van Tienhoven advanced the theory that enuresis in childhood is the result of weakness of the sphincter of the bladder. Without accepting the accuracy of this view, the surgeon may readily adopt his simple suggestion regarding treatment, which is, that the pelvis should be raised by elevating the lower end of the bed (by placing blocks beneath the feet), so that the urine may be prevented from lying against the sensitive trigone and the neck of the bladder.

11. Hip-joint disease.

Dr. John Ridlon (*Trans. Amer. Orthop. Assoc.*, vol. ii., p. 162), in an excellent article, remarks: "The old 'American method' of motion without friction has passed away—*requiescat in pace*—and a new American school has arisen. We are members of that school. We believe in fixation, first, last, and all the time." How, I wonder, will Professor Sayre receive this expression? Will he adopt it as an epitaph for his well-known splint which treated hip-joint disease by "fixation with motion"?

Dr. Ridlon complains that reliable statistics of any considerable

number of cases treated by immobilisation are still wanting. This is true enough, and perhaps for the reason that the more work that the practical surgeon has to do with hip-disease, the less likely is he to be able to spend time over the tabulation of results. The next statement which Dr. Ridlon makes, though doubtless in accordance with his belief, is certainly not correct: "Although Thomas's splint has now for some time been in pretty general use in England, but few patients have been treated by others than himself in a satisfactory way." On what grounds does Dr. Ridlon make such a statement?

In summing up the results of the Thomas treatment, Ridlon rightly states that shortening must be present when there has been erosion, and when the growth of the limb has been arrested by the disease; and that ankylosis is only found when the inflammatory process has been exceptionally destructive. It is to be feared, however, that he is anticipating the future when he says that no one any longer claims that the prolonged immobilisation to which the patient is subjected is in itself productive of ankylosis. The paper is brought to a conclusion with this important sentence: "It does not appear to me that sufficient evidence has been presented to demonstrate that the results of the use of the traction-splint are any better than, or as good as, those obtained by any purely fixative apparatus." To the disciple of Thomas, this remark from a practical and advanced American surgeon like Dr. Ridlon comes most acceptably.

Though, in writing the epitaph (as we hope it may prove to be) of the "American method" of dealing with hip-joint disease, Dr. Ridlon asserts that, happily, no one now believes that immobilisation of itself produces ankylosis, his *confrère*, **Professor Phelps**, sets himself the somewhat superfluous task of showing, by a short series of vivisection experiments upon dogs, the truth of this assertion. Thus, in a paper which was read before the Medical Society of the State of New York, February, 1890, he maintained the following conclusions:—"That a normal joint will not become ankylosed by simply immobilising it for five months. That motion is not necessary to preserve the normal histological character of a joint. That when a healthy joint becomes ankylosed, or its normal histological character changed, it is not due to prolonged rest, but to pathological causes. That immobilising a joint in such a manner as to produce and continue intra-articular pressure will result in destruction of the head of the bone and the socket against which it presses. That atrophy of the muscles of the limb will follow prolonged immobilisation of a joint."

"The question of ankylosis is determined by the severity of the inflammation, the character of the inflammation, the duration of the inflammation, the presence of intra-articular pressure, the subsequent cicatricial contraction of soft parts around the joints, the tissues involved, and the amount of destruction of bone and cartilage. Motion of an inflamed joint only interferes with repair, and more certainly hastens the case on to ankylosis and deformity. To prevent this calamity, when it is possible, absolute rest and the relief of intra-articular pressure should be the plan of treatment. Inflamed joints treated upon the plan of absolute immobilisation and the relief of intra-articular pressure furnish by far fewer cases of ankylosis, limited motion, and deformity."

Dr. Bidlon, in the *New York Med. Journ.*, Oct. 4, 1890, gives his experience of the treatment of 62 cases of hip-disease which he had watched in the practice of Mr. Thomas, of Liverpool. Dr. Bidlon is of opinion that those patients who have worn the long splints until cured, remaining in the horizontal position until pain and muscular spasm had subsided, and had then used the high patten and crutches, were cured without flexion or other deformity than the shortening due to actual bone erosion and arrested growth. Further, that they have shown motion in a very large proportion of cases, whilst in not a few normal motion was obtainable. The absence of any traction, either in the line of the shaft or of the neck of the femur, does not seem to have increased the number of patients having abscesses, nor to have increased the frequency or the amount of shortening. No case had given signs of perforation of the acetabulum by the head of the femur, and in only one had there been indication of perforation by suppuration. Involuntary muscular spasm, and pain arising therefrom, were noticeable by their absence. In a word, those patients who had had no traction were found to be remarkably free from all those conditions which American surgeons usually considered could be relieved only by persistent and long-continued traction.

Dr. Edward Borok, in a paper presented to the Berlin Medical Congress, urges the evacuation of the tense and swollen capsule of the hip-joint in the early stage of disease—that is, when the fluid is sero-synovial only. No doubt, unless the tension is relieved, the clear fluid will in due course—in the majority of cases—become purulent, when the chances of saving the joint are greatly diminished. He reaches the joint by making a small incision through the skin behind the great trochanter, finding a way into the capsule by using a blunt director. This treatment, which is in accord with the dictates of anatomy, pathology, and surgery, formed the subject of a short communication before the American

Meeting of the International Medical Congress (1887)—a paper which has evidently escaped Dr. Borck's notice.

12. Excision of the hip, combined with the hot-water method, was the title of a paper read before the Royal Medical and Chirurgical Society, Oct. 28, 1890, by **Mr. A. E. Barker.** The merit of the *technique* employed in these cases was that the evacuation of the tubercular material was made so thoroughly that it was safe to close up the wound on the spot *without drainage*, and look for union everywhere in the structures left behind, a sound cicatricial tissue taking the place of the diseased area, and all open sinuses being prevented.

The method of procedure was briefly sketched, the most important details being indicated. The principle underlying it was simply to get rid of all the diseased tissue in the joint which had already degenerated and broken down, and to do this in such a thorough manner, by flushing and gouging combined, that the tissues left behind might be capable of uniting at once by first intention. The necessity of a continuance of the perfect immobilisation previously in force was still insisted upon, and it was recommended that this should be kept up probably for some four or five months after operation.

Mr. Barker's method was suggested, the author said, as a means of treating tubercular hips where other methods had failed, and when abscesses were forming and threatening to burst.

In the discussion which followed, it was generally conceded that as regarded the *immediate* results in the children exhibited little was left to be desired—all the children, however, were not forthcoming. It was generally admitted also that abscess in connection with disease of the joint should be incised at once and treated aseptically, but without drainage; that in these circumstances primary healing might be expected; that drainage tubes should be used only in septic cases. Another important point brought out in the discussion was that a limb in which excision had been performed could not show such a good *permanent* result as one in which, under the influence of time and patience, a natural cure had been obtained. We know that from time to time children are exhibited with apparently excellent limbs left just after an excision, but these have not been subjected to the "time-test." Doubtless "good results" are occasionally seen later on, but, the Reviewer would maintain, they were not improbably in cases in which a better result might have been forthcoming under more patient and less heroic treatment.

DISEASES OF THE GENITO-URINARY SYSTEM.

BY REGINALD HARRISON, F.R.C.S.,

Surgeon to St. Peter's Hospital, London.

1. The treatment of movable kidney.

Dr. W. W. Keen (*Annals of Surgery*, vol. xii., No. 2, Aug., 1890) gives a full account of our present knowledge in reference to movable kidney, and appends a collection of 134 cases, from which conclusions are drawn. The symptoms of the lesion are fully discussed, and instances are recorded where serious gastric and other disturbances were relieved by the fixation of the organ to the body. The treatment described includes, first, the use of an external pad; and, on this proving insufficient, the suturing of the kidney to the body. The sutures should pass through the kidney, where they seem to do but little harm. As a last resource, nephrectomy may be required. After the operation for fixation by sutures, it is necessary that the patient should take sufficient rest to secure consolidation of the parts, otherwise loosening may again occur.

The paper is a useful one, and illustrates how much discomfort this lesion may cause. In one instance which came under the notice of the reviewer it was clearly connected with a fall in the hunting-field, and ultimately led to the individual having to abandon all horse or jolting exercise. A pad and an abdominal belt merely proved sufficient to render ordinary walking exercise tolerable. The patient was not disposed to undergo the operation described by Dr Keen, which would probably have effected a permanent cure with really less risk than the freely movable organ constantly exposed him to. The presence of albumen is noted as a frequent symptom of this condition.

2. Nephrectomy for severe hæmaturia.

Dr. McBurney (*Journ. Cut. and Gen.-Urin. Diseases*, New York, July, 1890) reports a case where nephrectomy was performed successfully for "chronic pyelitis with acute hæmorrhagic exacerbation." The patient was a female. The bleeding had

occurred on three occasions in quick succession, and was supposed to be due to the presence of a stone in the kidney. Though exploration failed to reveal a calculus, immediate nephrectomy, to check fatal hæmorrhage, was apparent. The patient recovered. Examination of the extirpated kidney showed only chronic pyelitis, attributed to the presence of a calculus previously passed, but sufficient to account for the severe hæmaturia. Dr. Belfield thought this case unique. It occurred to him that if one could be sure that the hæmaturia did not originate in malignant disease, it might be an experiment worth trying to ligate, at least temporarily, the ureter, and see what effect would be produced.

The only case that occurs to me where treatment of this kind was necessary for the arrest of renal hæmorrhage was one recorded by Dr. Rawdon, of Liverpool (*Liverpool Med. Chir. Journ.*, Jan., 1884), where I was present, and agreed as to the propriety of performing nephrectomy for rupture of the kidney, which was found almost completely torn across. In Dr. Rawdon's instance death unfortunately resulted twenty-four days afterwards, from suppurative pyelitis of the opposite kidney, from the retention of a blood-clot in the bladder. It seems quite possible, from what I have seen, that a calculus which has escaped from the kidney may leave behind it, in the bed that it may have so long occupied, a cause for serious hæmorrhage, and treatment such as Dr. McBurney illustrates in his case.

3. Renal calculi.

Dr. Murray (*Prov. Med. Journ.*, Oct., 1889) states that belladonna is more beneficial than opium in relieving the pain of renal colic. If the drug is pushed sufficiently long and in large enough doses, the entire removal of the calculus, first from the pelvis of the kidney to the bladder, then from the bladder by the urethra, often follows. Some cases are quoted illustrating this assertion. It is urged that the drug should be pushed to its toxical stage, commencing with 40 minims of the tincture, and repeating it every two hours.

Though belladonna may favour the expulsion of renal stones by allaying pain and spasm, I am not aware that it has ever been shown to exercise solvent properties. I am sure, however, that in cases of renal calculi it may be used with advantage much more freely than is common.

I have recently drawn attention (*Clinical Lectures at St. Peter's Hospital*. Ballière. 1890) to the use of boracite, in the form of a powder of boracite of magnesia, which I have been using for some time, apparently with advantage, in aiding the expulsion

and dissolution of kidney stones. "My attention was first called to it by a paper by Dr. Kochler, of Kosten,* who advocated its employment in cases of uric acid calculi and gravel. It is prepared (Bell and Co.) by dissolving a natural borate of magnesia, which is found at Strassfurt, in citric acid. It forms a white powder with a sourish taste, and is given in teaspoonful doses in a tumbler of warm water two or three times a day. I have tried it in several cases of impacted renal calculi which have come to this hospital with the view of having the stone removed by operation. Here are two specimens of stone which have been passed by two patients within the last few days who had been taking the boracite for some weeks previously for attacks of renal colic and hæmorrhage. One of the stones, you will see, presents a slightly worm-eaten appearance, as if it had been exposed to some solvent action by which its loosening and ultimate escape had been facilitated. I do not pretend to offer any reasons based on the chemistry of the subject for what I am showing you—all I can say is that I have frequently known the discharge of these bodies, whose presence had previously been suspected, to take place after the use of the salt. It may be, all it does is to secure that the individual shall take at stated times more fluid than perhaps he would otherwise do—an important point upon which Sir William Roberts has laid stress. I am, however, disposed to think, from what I have seen, that it does more than thus induce a person to flush his kidneys with a bland fluid by no means disagreeable to take, but that it is capable of modifying or altering the crystalline form in which uric acid is discharged, and of exercising a solvent power on some kinds of urate stones."

4. Impacted calculus in the ureter removed by operation.

Mr. G. Twynam (*Trans. Clin. Society*, Jan. 24, 1890) reports the removal of a stone from the ureter of a child eight years of age by an operation similar to that used for tying the common iliac artery. Some difficulty was found in isolating the ureter, but it was ultimately accomplished, and the stone was extracted with forceps through a small incision. The wound in the ureter was stitched with fine silk. On the fifth day the urine ceased to flow from the wound, which then rapidly healed, and the boy made a perfect recovery. The stone weighed six grains, and was the size of a No. 12 catheter. In connection with this subject, I see that Mr. W. A. Lane (*Lancet*, Nov. 8, 1890) records a case where a calculus was removed from the ureter of a woman by abdominal section. In this instance an attempt had previously been made

* *Berliner klin. Wochen.*, N. 1890.

by lumbar incision. As the symptoms continued "the abdomen was opened along the left linea semilunaris, and in the portion of the ureter which had not been explored at the previous operation a small stone was felt. This was forced upwards along the ureter to the crest of the ileum, and by means of a small incision in the side the ureter was exposed and the stone removed. The aperture in the ureter was sewn up by means of a fine continuous silk suture. The wounds healed very rapidly, no leakage taking place from the ureter." The patient made a good recovery.

These cases show that a stone may be situated in that portion of the ureter which is practically inaccessible to the ordinary lumbar incision, and in the second place indicate the precise steps that may be necessary for their removal in such circumstances. I am not aware that other cases of the kind have hitherto been recorded. I can recall an instance where a calculus impacted in the termination of the ureter was forced into the bladder by opening the pelvis of the kidney and catheterising the ureter from above downwards. The stone was subsequently expelled from the bladder and the patient made a good recovery.

5. The treatment of suppurating kidneys by perineal puncture and drainage.

Mr. Reginald Harrison (*Lancet*, Dec. 7, 1889) illustrates this method of treatment in some cases of obstructive urethral disorders where, though the calibre of the canal may be restored to its normal size, pus continues to be poured into the bladder from above in considerable quantities. "I have now operated in ten cases of what I take to be chronic suppurating pyelitis, involving both kidneys, where, had only one organ been involved, I might perhaps have reached it and drained it from the corresponding loin." A form of perineal drainage-tube recommended by Dr. F. S. Watson, of Boston, U.S.A., is figured (*loc. cit.*) as suitable in these cases.

6. New means to assist in the removal of intra-vesical growths through a supra-pubic cystotomy.

Dr. F. S. Watson (*Journ. Cut. and Gen.-Urin. Dis.*, N.Y., Aug., 1890; and *Lancet*, Oct. 18, 1890) demonstrates the mechanism and method of use of two instruments devised by himself, their objects being respectively to expose the interior of the bladder after the organ had been opened above the pubes to view, and to remove bladder growths by means of galvano-cautery action. These ends were accomplished by a bladder speculum and a galvano-cautery instrument. By the kindness of Dr. Watson I had the opportunity of seeing these instruments. Though I have not at present used either of them, and though they are evidently not

applicable to all conditions of either bladder or tumour, they should be at hand when operations of this kind are undertaken.

7. On the absorbent power of the bladder.

Tricomi, of Rome (*Wiener klin. Wochen.*, 1890), has made a series of observations on the absorbent power of the bladder with the epithelium in a normal and in a changed condition. From these experiments the following conclusions were drawn:—

1. That the bladder has considerable absorbent power. With intact epithelium this is less for many substances than that of the surface of the skin.

2. Where the epithelium is not wounded certain bacilli and other microbes, which may be retained in putrid fluid, do not penetrate into the circulation.

3. With an altered epithelium the absorption of fluids is decreased, while the penetration of pathogenetic micro-organisms into the blood-current is easily possible.

4. Where cystitis is present the penetration of septic micro-organisms into the circulatory system is much easier. These observations were made on dogs, rabbits and guinea-pigs. D'Ambrosio, of Naples, observes that absorption takes place in the bladder with changed epithelium. He mentions the case of a man suffering from purulent cystitis in whom injections of acetate of lead caused symptoms of mineral poisoning. He also refers to instances where washing out the bladder with weak solutions of carbolic acid caused symptoms of the characteristic poisoning.

These observations have a practical bearing on certain points directly associated with the therapeutics and pathology of the bladder. That a normal condition of the epithelial lining of the viscus is opposed to the absorption of either the constant or accidental constituents of the urine, there can, I think, be but little doubt, but where this structure is damaged either by an injury or disease the possibility of systemic infection is thereby greatly increased. There seems no difficulty in understanding why, on the one hand, a solution of opium may be placed in the bladder with impunity, whilst on the other an unclean instrument may give rise to those consequences which are now familiarly recognised under the name of catheter fever.

8. The treatment of catarrh of the bladder.

Dr. Grünfeld (*Centralblatt für die Gesamte Therap.*, Dec., 1889) draws a distinction between "catarrh" and "inflammation" of the bladder, limiting the former term to an affection of the mucous membrane, and the latter to the condition where all the coats of the viscus participate. In catarrh the mucus is increased, while in cystitis pus predominates. Considerable stress is laid on

the value of the cystoscope in distinguishing the different pathological changes connected with these conditions. In the management of simple catarrh of the bladder, such as we see in connection with gonorrhoea, treatment has to do only with the general condition of the patient, except where stricture or an enlarged prostate is present. In acute cystitis leeches to the perineum are recommended, and opium to quiet severe pain. Dr. Grünfeld appears to have had good results from cocaine suppositories (0.20 in five doses). If the pain be very severe, the prostate should be examined for abscess. After the acute symptoms have subsided, local treatment must be begun. Washing out the bladder with a 1 per cent. lukewarm boric acid solution, or a creolin solution 1 to 1,000 or 2,000, or a rose-red solution of permanganate of potassium, succeeds well, and prevents an acute cystitis from becoming chronic. A soft catheter should be used, and the fluid thrown in gently. In treating chronic cystitis, the presence or absence of enlarged prostate or atony of the bladder is first to be determined. Local treatment is in this form of the affection to be chiefly relied upon, though good results often follow benzoic acid, salicylic acid, salol, nitrite of amyl, balsams, and oils, such as sandal-wood oil and eucalyptus. Care should be taken that the bladder is regularly emptied of urine by a soft catheter, so as to prevent decomposition, and suitable disinfectants are to be employed. In the first rank of disinfectants for washing out the bladder, and one best borne by the patient, is a solution of boric acid in the proportion of 1 or 2 per cent. Permanganate of potash in weak solution (1 to 1,000 or 2,000); resorcin, $\frac{1}{2}$ to 1 per cent.; carbolic or salicylic acid, $\frac{1}{4}$ to $\frac{1}{2}$ per cent.; chloride of zinc, 1 per cent.; perchloride of mercury, 1 to 10,000; 5 or 10 drops of nitrite of amyl in 500 grammes of water, may all be followed by good results. The effect is increased if a little of the solution is left in the bladder and passed naturally, or drawn off later. For toning the bladder after disinfection has been sufficiently employed, astringents may be necessary for restoring power and diminishing mucous secretion. The astringents recommended are sulphocarbonate of zinc or crude alum in $\frac{1}{2}$ to 1 per cent. solution; sulphate of thallium, 1 to $1\frac{1}{2}$ per cent.; chloride of zinc, 1 per cent.; acetate of lead, 1 to 2 per cent. In some cases instillation of $\frac{1}{4}$ to $\frac{1}{2}$ per cent. nitrate of silver solution, by means of Ultzmann's or Guyon's instrument, into the bladder is recommended. After careful cystoscopic examination to fix the size and location of the diseased areas, the author has in a series of cases in women painted the mucous membrane through the

endoscope with a 5 per cent. nitrate of silver solution or tincture of iodine. (See also *Journal of Cutaneous and Gen.-Urinary Diseases*, New York, March, 1890.)

This paper is one of considerable interest, and epitomises much that has recently been done in reference to the treatment more particularly of the chronic inflammatory affections of the bladder. It is most important in the local treatment of these affections that those agents should be selected for injection which disinfect and astringe without in themselves producing irritation. In using these, as well as others that might be mentioned, it is well to employ only extremely weak solutions of them to commence with, and to add to their potency when their tolerance is determined. It is extremely interesting, but most necessary to bear in mind, how varying are the susceptibilities to the local action of drugs of persons apparently suffering from precisely similar disorders. The irrigation of the bladder, for instance, with a weak solution of carbolic acid will in one case give a patient a restful night, whilst in another it is followed by intense irritation. These unexplainable differences can only be met by careful observation.

9. Asepsis of instruments employed in the bladder.

Dr. Picard (*Gaz. des Hopitaux*, No. 28, 1890; and *Journal. Cutaneous and Gen.-Urinary Diseases*, New York, May, 1890) writes upon the disinfection of catheters and sounds before they are passed into the urethra and bladder. He considers first the question whether it is always a necessary thing, and the dangers which its neglect may give rise to, and secondly, by what means the disinfection may be best and most easily brought about. He points out that several of what were spoken of as "the accidents of catheterism," such as prostatic abscess, orchitis and urinary fever, were really the products of infected instruments.

Respecting the means to secure asepsis, the author confines himself to noticing those easily secured by the general practitioner. Metallic instruments are most easily disinfected. Boiling in simple water or in salt water is regarded as giving practically the necessary guarantees; boiling in strong carbolised water is preferable, but often impracticable. Soft or semi-soft instruments are more commonly employed, and require greater care. Flexible instruments should be immersed both before and after they are used in some antiseptic solution, such as phenic acid or corrosive sublimate. More care is necessary with catheters, as infecting matter may readily be concealed within them. Dr. Picard goes on to remark that the hands of the surgeon should in the same way be rendered aseptic. The meatus and glans penis of the patient should be washed in a sublimate solution or in hot water.

If the urethra is already infected, it should be washed out with a saturated solution of boric acid. For lack of such precautions a more or less acute cystitis has often been set up.

It is hardly necessary to insist on the principle which underlies Dr. Picard's treatment of this subject. There can be no doubt that dirty instruments, and the want of what we now call antiseptic precautions, are capable of producing such effects as are described in this paper, and it is most important that surgeons should not neglect to impress this point upon such of their patients as have to employ self-catheterism in its various forms. The subject of this paper is hardly one which at the present day requires any comment. If surgeons first approached the bladder with all the precautions to avoid suppuration that are taken when other areas, such as those of the pleura, pericardium, and peritoneum, are entered, we should hear much less of what are now known as "catheter and urinary fevers."

10. Inflammation of the seminal vesicles.

M. Horwitz (*Wein. Med. Presse*, 1889, and *Journ. Gen.-Urinary Diseases*, N. Y., May, 1890) treats of this subject. Primary acute inflammation is rare, the affection being mostly of a secondary nature in connection with gonorrhœa, stricture, urinary tuberculosis, and malignant growths. Its symptoms are fever, spasmodic pains extending from the perineum to the urethra and bladder, painful urination and erections. During the violence of the spasmodic pains, a contraction of the perineal muscles takes place, expelling a thick, cloudy fluid, consisting of spermatozoa, pus corpuscles, and epithelial cells. Examination per rectum reveals a painful swelling of the part. The treatment consists in long abstinence from sexual intercourse, cold applications to the perineum, and the use of laxative medicines. In the most severe cases suppuration may occur. In connection with this subject, **Dr. E. Ullmann** (*Centralblatt für Chir.*, Feb. 22, 1890) narrates the particulars of a case where he extirpated the right seminal vesicle for tuberculosis, secondary to that of the epididymis. Castration was first performed on the right side, and then the perineum was opened midway between the scrotum and anus. In this way the vesicles were reached and explored. The patient, aged 17 years, recovered rapidly from the effects of the operation, his general health being benefited thereby. The author believes the operation can be recommended in the following cases: (1) In primary tuberculosis of the testicle or epididymis, where no suspicious symptoms are present on the healthy side, but where the seminal vesicle is diseased on the affected side. If both seminal vesicles are diseased, and vas deferens healthy, it should be left undisturbed,

both seminal vesicles however being removed. (2) In primary tuberculosis of the seminal vesicles, the impotency which remains after the operation cannot be used as an argument against it, as in all cases of tuberculosis of the vesicles it is remarked that impotency soon shows itself as a symptom of the disease.

The treatment of urinary tuberculosis by extirpation of certain parts, such as a kidney, the vesiculæ seminales, or the testes, to which it is supposed the infection is limited, with the view that the further progress of the infection in this system may thus be arrested, is one which cannot, I believe, have but a very limited application, and this limitation is necessary on the ground that there is no guarantee or even means of ascertaining that the disease is restricted to the part in question. In an exhaustive paper on "Tuberculosis Uro-genitalis," Dr. J. P. Bryson, of St. Louis (*Journ. Cut. and Gen.-Urinary Diseases*, N.Y., July, 1890), from the clinical study of eighty-four cases of the disease, and of twenty-three operations done on fourteen patients, deduces: "(1) That all the evidence points to the conclusion that we have to deal, even in its earliest recognisable stages, with a general disease which manifests itself by localisations. (2) That present experience does not warrant the belief that operations, however extensive, undertaken with the view of excising localised lesions, and therefore radically curing the disease, will be successful. (3) That our chief resource is still in general anti-tubercular treatment, reserving surgical interference for the palliation and relief of pain, bleeding, and wasting suppuration."

Of the remedies that will be found most serviceable in the early treatment of urinary tuberculosis, mercury in small doses may be mentioned; under its continued use tubercular nodules will disappear, and the patient rapidly improve in health. Half a grain to a grain of grey powder two or three times a day is quite sufficient for this purpose. In tubercular testes we certainly have the advantage of being able to demonstrate the local action of a drug on the infecting deposit. We have yet to see what Koch's treatment by inoculation is capable of doing in this form of tubercular disease.

11. Suprapubic cystotomy for tubercular disease of the bladder.

Guyon (*Annales des Maladies Gen.-Urinaires*, 1889) gives an account of four operations performed for tubercle of the bladder. His procedure consists in opening the bladder above the pubes for exploration, and then removing the tubercular patches in the mucous membrane by scraping and the cautery.

Of the four cases only one appears to have been successful. He is disposed to look hopefully on the operation where the tuberculosis has not advanced too far. Mr. W. H. Battle (*Trans. Clin. Society*, April 25, 1890) also records a case where a similar proceeding was practised with success. The ulcerated surface was well exposed and scraped with a sharp spoon.

This kind of treatment would seem, considering how frequently tuberculosis exists coincidently in other parts of the genito-urinary apparatus, to be of a very limited application. In some cases, attended with great irritability of the bladder, it might afford a means of relieving this symptom by providing a ready means for urine drainage, but the prospect of doing permanent good by it, considering the nature of the disorder, seems, from the limited experience before us, rather remote. As Mr. Christopher Heath points out (*Lancet*, May 3, 1890), much good can often be done in these cases in the female by dilatation of the urethra and the application of strong solutions of nitrate of silver with a brush to the raw surface.

12. Exfoliation of the bladder in the female.

Dr. F. W. N. Haultain (*Edin. Med. Journal*, June, 1890) publishes an account of one of these rare cases, where the exfoliated mass proved to be, by microscopic examination, the entire thickness of the bladder-wall in a state of coagulative or hyaline necrosis, with a piece of the peritoneal covering attached. The patient made an uninterrupted recovery. At no time was she able to contain her urine. The only treatment adopted was persistent washing out of the bladder with antiseptic solutions. "As regards the nature of the receptacle for the urine which remains after the bladder has been shed, the condition is one of great interest. It is formed primarily around the necrosed organ by the agglutination of the surrounding organs to one another by exudation of lymph, which later becomes vascularised and formed into new connective tissue." The patient was seen eighteen months afterwards in good health, her only complaint being that her urine continued to dribble.

It seems almost out of place that a case of this kind should appear in a work devoted to the treatment of disease. It has, however, a by no means unimportant bearing on the question as to the propriety of attempting to make an artificial bladder in some cases of congenital deformity of the viscus, as well as in others of proposed extirpation for malignant disease. Here there can be no doubt nature provided a substitute for that which had been destroyed by disease. Other cases are referred to in this paper bearing upon this point, and tending to show

that the formation of a new bladder is within the range of surgical possibility.

13. A new form of bladder sound.

Mr. Buckston Browne (*Prov. Med. Journ.*, April, 1890) describes an instrument which, from his experience with it, he believes combines the virtues of the sound and the lithotrite. It is of burnished steel, having the broad flat beak of the lithotrite and the light handle and shaft of the sound. The handle is round and perfectly smooth. Mr. Browne considers that "the broad beak of the instrument enables it to escape entanglement in the prostatic sinus, and to ride safely and easily into the bladder, whilst its broadness and flatness allow it to be easily reversed when in the bladder, and permit the beak to slip with facility under the projecting lobe of the prostate, allowing the space underneath to be as fully explored as it is possible by any instrument introduced by the natural passages."

Though I have no doubt that such an instrument as the one Mr. Browne describes will be found extremely useful where a large prostate renders the detection of a stone more or less difficult, I have no hesitation in urging, where such difficulty is known to exist, that exploration of the bladder should invariably be practised under an anæsthetic. The process of sounding in such circumstances is always painful, and often incomplete, and it is frequently a matter of subsequent regret that an anæsthetic was not in the first instance employed. I cannot recall an instance in my personal knowledge where, under an anæsthetic, a stone escaped detection; but without this precaution, whatever instrument has been used, such an accident has not unfrequently happened, even in the hands of those accustomed to this work. It is a good rule in patients with symptoms which may indicate stone in the bladder, where the finger in the rectum also shows the prostate to be enlarged, to sound under an anæsthetic. If no stone is detected the patient is not conscious of any pain that the examination might have caused, however dexterously performed, whilst, on the other hand, if a stone is proved to be present he is less likely to be apprehensive of its subsequent removal. Besides, if the bladder prove to be sacculated, it may be necessary, in addition to the ordinary sound, to use the water test with the aspirator catheter and wash-bottle, as first suggested by Dr. Freyer.

14. Cystoscopy in relation to the treatment of urinary diseases.

Mr. Hurry Fenwick (*Brit. Med. Assoc.*, July, 1890) illustrates this "as an important factor in the scientific treatment of obscure bladder disease." Speaking more particularly in reference to the

treatment of ulceration of the bladder, it is observed, "I have known such ulcerations last for years without extending. Not unfrequently they are covered with lime phosphate. Such cases are greatly benefited by lactic acid injections, 1 to 4 per cent. given daily, or by scraping." At the same meeting Mr. Bruce Clarke also communicated an important paper on the same subject. Though these communications are chiefly occupied in illustrating the use of the cystoscope in the diagnosis of bladder affections, they must in this sense be regarded as having an important bearing on the treatment of these affections, and the value of the cystoscope in giving precision to various forms of local medication particularly, which are referred to.

15. Aspiration as a substitute for catheterisation.

Mr. Reginald Harrison (*Lectures at St. Peter's Hospital in 1890*. Ballière) illustrates some conditions of the senile bladder where, he believes, it is positively better to draw off residual urine when present in large quantities by the aspirator rather than by the catheter. Comparing these two methods in a case in point, he remarks—"I thus avoided during the period of greatest risk in this case, when the urine was on the verge of alkalinity, and the kidneys hardly doing anything else than percolate water, any chance of introducing an important element of decomposition into the bladder, or interfering with a urethra which had been distorted by prostatic hypertrophy. With acid urine, and a fair specific gravity, with ordinary care there is comparatively little risk attendant the use of catheters. Where these conditions are absent the danger with elderly males is by no means an imaginary one. In removing urine, either by the catheter or aspirator, from the atonic bladder, I feel sure that the employment of abdominal support, in the shape of a binder or an elastic bandage, is of much advantage. In connection with these remarks on the treatment of some forms of the atonic bladder by aspiration instead of in the first instance by any attempt to introduce a catheter, I had noted the impunity with which the proceeding had been practised in those instances where it had followed futile trials to pass a catheter by reason of a large prostate. It seemed rare to find that fever followed this mode of removing urine from the paralysed bladder, though many instances are recorded where it was resorted to for several consecutive days."

16. Rupture of the bladder.

Dr. W. W. Keen (*Trans. Philadelphia County Med. Soc.*, Feb., 1890) describes a means of ascertaining whether the bladder is ruptured by injecting filtered air into it. "Should no rupture have occurred, the rounded, elastic, tympanitic bladder will appear

in the hypogastrium. Should there be a rupture the air will escape through the rent into the general peritoneal cavity, and distend the entire belly."

Where the conditions are favourable for applying such a test, it may prove of service before proceeding with laparotomy. It so often happens, however, that the degree and nature of the violence applied are such as to render the whole of the abdomen tympanitic by intestinal distension. In these circumstances the air test could hardly be relied upon, and would at least require to be supplemented by more direct evidence before action could be taken. The suggestion, however, is a practical one, and likely to be of value in connection with an injury where life may be said to entirely depend upon an early diagnosis being made.

17. Atony of the bladder treated by suspension.

Mr. Hurry Fenwick (*Med. Society of London*, May 25, 1890) narrates the particulars of a case where a patient, aged 35, suffering from incontinence of urine, and loss of sexual power of spinal origin, was treated in this way with considerable advantage. Mr. Reginald Harrison at the same time mentioned a somewhat similar case in which Charcot had advised a trial of treatment by complete suspension. He had therefore suspended the patient fourteen times in two months, from sixty to ninety seconds at a time, with the result that the bladder regained its power and the tendency to cystitis disappeared.

This is a method of treatment which seems to be worthy of a further trial in cases coming under this category.

18. Atropine in enuresis.

Dr. E. B. James (*Archives of Pediatrics*, Sept., 1890) gives the particulars of an extended trial of this drug for enuresis in children. He commenced by giving $\frac{1}{100}$ grain of atropine sulphate, but no case was benefited by less than $\frac{1}{80}$ of a grain, and in one case $\frac{1}{10}$ of a grain had to be given. The required quantity was given in two doses at eight and nine p.m. Anything short of the full physiological dose seemed to produce no effect whatever. Dr. James thinks that in children too big to wear diapers "we can with confidence offer a substitute in the shape of a full dose of atropine, to be repeated every night till the child has outgrown his infirmity, and this point can be tested by having the drug withheld from time to time."

This is valuable testimony in regard to the treatment of an extremely troublesome and offensive complaint. The drug was tried on a large scale and in such a way as to greatly strengthen the evidence which already exists in its favour.

19. Salol in genito-urinary diseases.

Dr. J. G. Mumford (*Boston Med. and Surg. Journ.*, June 19, 1890) reports a series of cases where salol was used. In the first, 10 grains of salol, taken three times a day for a week, effectually prepared a susceptible patient to undergo litholopaxy without the occurrence of any unpleasant after-effects, though previously mere examination of the bladder was enough to provoke catheter chill. The fourth case was that of a delicate man, aged 43, the subject of gleet and stricture. Catheter chill following introduction of the sound; salol in doses of $2\frac{1}{2}$ grains thrice daily was given, and thenceforward the temperature kept below 99° . The fifth case was one of stricture and perineal fistula, in which high fever and delirium were completely controlled by salol, 10 grains every eight hours. In the remaining four cases equally satisfactory results in combating the chill and fever produced by catheterisation were obtained by the employment of the drug, the quantity given varying in different circumstances from 2 to 5 or 10 grains per dose.

Like quinine and boric acid, salol seems to possess the power of sterilising the urine, and in averting urinary fever and in assisting to remove pus from the urine has been found useful by many observers.

20. External urethrotomy and retrograde catheterism.

Dr. Delefosse (*Annales des Malad. Gén.-Urinaires*, Sept., 1889) advocates this practice in certain conditions. Having opened the bladder by suprapubic incision, he feels for the orifice of the urethra with the left index finger, and passes a bougie as far as the external or penile wound (previously made), when it is attached to the end of an instrument introduced from the meatus. He concludes that (1) retrograde catheterism should be adopted more frequently in cases of impassable stricture, combined with external urethrotomy; (2) retrograde catheterism can be employed for ruptured urethra. Dr. Delefosse appears to consider that this is a method of treatment deserving of further attention.

Mr. Furneaux Jordan was, I believe, the first to take advantage of the dilated or funnel-shaped condition of the urethra which invariably exists on the bladder side of a stricture. I should hardly, however, think of availing myself of this method of attacking a stricture unless, in addition, there was a very good reason for submitting the bladder to drainage for some time after the urgency of a stricture, which had proved unmanageable by instruments from the front, had been relieved. If in these circumstances the suprapubic method of drainage seemed to be

the preferable one, then, I think, Dr. Delefosse's plan of dealing with the stricture from the bladder side might possibly commend itself.

21. Death following the injection of cocaine into the urethra.

M. Simes reports a case (*Lyon Médical*, Oct., 1889) where, before performing an internal urethrotomy, one gramme of a 5 per cent. solution of cocaine was injected into the urethra. The patient, aged 29 years, was, independent of his stricture, in good health. Immediately following the injection contraction of the muscles of the face took place, then dilatation of the pupils, arrest of respiration, and epileptiform convulsions. The convulsive phenomena increased in severity, the respiratory movements became more and more feeble, the cyanosis intense, and at the end of twenty minutes the patient was dead.

Though an extremely useful drug, and one that may be employed advantageously in some of the minor operations connected with the urinary organs, it must not be forgotten that there are some persons extremely sensitive to its action, and in whom its poisonous properties are developed by a dose quite out of proportion to the effects immediately produced. When we hear of calculi being removed from the bladder under the local action of cocaine solutions, presumably I conclude on the ground of safety, it is well to remember that even this form of anæsthesia is not free from some degree of serious risk.

22. Circumcision.

Dr. E. E. Palmer (*Journ. Cut. and Gen.-Urin. Dis.*, N.Y., July, 1890) considers this operation necessary in the following diseased conditions :

- (1) In gleet with stricture, where a long and tight prepuce interferes with the operation of urethrotomy.
- (2) In cases of recurring herpes and balanitis.
- (3) In syphilis, where the chancre might be removed with the redundant tissue.
- (4) In some cases of chancroid complicated with phymosis, where the local disease was beyond the reach of our remedies.

He advises carefully preserving the frenum, using interrupted sutures and the application of a dry antiseptic dressing. Dr. Keyes (in the discussion following) stated he was not in the habit of using any dressing whatever ; that he used the horse-hair interrupted suture, and that the stitches cut their way out and did not require to be removed. The patients went about on the third day. In reference to the use of cocaine in connection with this class of operations, Dr. Palmer said that he had had one case of poisoning

after the injection of about 10 drops of a 4 per cent. solution, when he was going to do a meatotomy. Another case occurred after the use of half a drachm of the 4 per cent. solution injected into the scrotum before operating for varicocele. He had never had any poisoning when the rubber band was used.

I presume Dr. Palmer uses the rubber band when practicable on the principle of the tourniquet. A reference has already been made to the toxic effects of cocaine.

VENEREAL DISEASES.

By ALFRED COOPER, F.R.C.S.,

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I. The general treatment of syphilis and its duration.

This much-discussed subject was again brought forward at the recent "Congrès International de Dermatologie et de Syphiligraphie," held in Paris in August, 1889 (*Annales de Derm. et de Syph.*, Dec., 1889). The main points under discussion were: (1) How soon after infection should treatment be commenced, and should it be continuous or interrupted? (2) what remedy should be used at first? (3) when ought iodine to be added to or substituted for mercury? (4) what are the indications for mercury and iodine respectively? (5) for how long ought the treatment to be continued? (6) ought the treatment to be pursued in the absence of manifestations? (7) when some years have elapsed since infection, is it well to give iodine to prevent relapses? Many speakers took part in the discussion; among them **M. Langiebert** advised that mercury should not be administered until secondary symptoms appeared; it should then be given continuously so long as any evidences remained. Secondary affections should be treated by local applications; the iodides should be given whether the virus be latent or active, and continued for about three years. Tonics and hydrotherapeutic remedies are likewise important, but of subordinate value. **Prof. Diday** urged that treatment should be adopted only when there were evident manifestations, and that mercury should not be given continuously. **MM. Leloir and Tavernier** discussed treatment by subcutaneous injections, which they regarded as suitable only in special circumstances. A summary of their remarks will be found in another portion of this article. **M. Schwimmer** protested against waiting until secondary symptoms become developed, and insisted on the necessity of immediate treatment as soon as the diagnosis is made. He gives the salicylate of mercury, and watches carefully for the first symptoms of stomatitis, which this salt is liable to cause. **M. Neumann** waits for secondary symptoms and prefers inunctions. **M. Kaposi** dilated on the dangers of injections, and regarded the practice as

unscientific. The desired dose cannot be administered with certainty; it may be introduced under the skin, but is not necessarily absorbed. Another drawback is the impossibility of preventing further absorption should symptoms of poisoning appear. **M. Petrin** gives the tannate in doses of ten centigrammes. **M. Mauriac** regarded inunctions and hypodermic injections as exceptional methods; he gives mercury internally as soon as the diagnosis is made. He adopts no fixed rule as to the continuance of the treatment, but is guided by the form and degree of the malady, and the tendencies and individuality of the patient. **M. Balzer** recommended injections, and asserted that local accidents were the only drawbacks. The fatalities were due to neglect of the ordinary rules for administering mercury. Very small quantities should be injected, and the patient's condition should be carefully considered. **M. de Watraszewski** (Warsaw) agreed with **M. Balzer**, and recommended the insoluble salts, especially calomel and the yellow oxide. He allowed that all the preparations caused more or less pain, and that there was always danger of penetrating a vein. **M. Barthelemy** asked whether injections were really more efficacious, and pointed out that they ought to possess many advantages to compensate for their drawbacks.

2. The effect of heat upon syphilitic symptoms.

Dr. Kalashnikoff, of St. Petersburg, has recently been investigating the effects of heat upon syphilis, and especially on eruptions (*Journ. of Cutan. and Gen.-Urin. Diseases*, July, 1890). His patients were women and children, and his method consisted in applying partial hot-air baths (never above 116°) to the affected parts for half an hour twice daily. During the intervals the parts were enveloped in hot flannel. The results were very satisfactory, even when the method was employed alone, and it seemed to do good even when ordinary specifics had failed. Hard sores healed and indurations disappeared in from 8 to 16 days; roseola, erythema, and papules, required from 8 to 21 days, and a still longer period was necessary for ulcers.

3. The influence of the hot springs of Arkansas in syphilitic cases.

At a meeting of the New York Dermatological Society **Dr. Keyes** discussed the influence of hot baths in the treatment of syphilis (*Journ. of Cutan. and Gen.-Urin. Diseases*, Feb., 1890). He considered that the waters of Arkansas had a very beneficial effect upon the course of syphilis. He confessed, however, that the local physicians used most unsparingly mercury by inunction, and iodide of potassium in enormous doses. It is

alleged that the hot baths and the internal use of the water enable the patients to bear this heroic treatment. Broken-down cachectic patients with irritable stomachs should be sent to the baths, where three or four times the ordinary quantity of the iodides can be given without upsetting the stomach, and mercury does not produce salivation. The baths are specially indicated for patients suffering from severe involvement of the brain or spinal cord, and who could not at home tolerate sufficiently high doses. Dr. J. A. Fordyce stated, as the result of three years' experience, that the waters alone were quite useless, although patients in a profound state of cachexia from old syphilis improve rapidly at the springs. In the early stages of the disease the result is not more rapid than under the inunction system at home. Dr. P. Morrow thought that equally good results might always be obtained by tonic and hygienic measures and specific treatment at home. It was claimed that the waters induced a tolerance for enormous doses of mercury and iodide of potassium. As a matter of fact, the practice was to crowd the system with these drugs, and then endeavour by hot baths and drinks to wash them out through the kidneys and skin. The good results of the springs are due to the change of air and scene, freedom from business cares, and the methodical character of the treatment. Other speakers allowed that the waters possessed no remedial value. Dr. Keyes recommended that the dose of the iodide should be increased until the symptoms were controlled, and stated that as much as 1,200 grains might be given daily.

4. Local antiseptics in the treatment of syphilis.

Dr. Hallopeau (*Journ. of Cutan. and Gen.-Urin. Diseases*, March, 1890) has directed attention to a question already much discussed and of great practical importance. He regards each manifestation of syphilis as a centre of multiplication of the virus, as a source of re-infection which it is necessary to suppress. The local application of the acid nitrate of mercury has an energetic and profound action, and the pain it causes may be mitigated by the use of cocaine; finely-powdered perchloride of mercury is also a very efficient caustic, but its effects require to be carefully watched. Dr. Hallopeau uses it to destroy the indurated chancre. Afterwards, mild solutions of the same salt (1 to 500-3000) may be applied with lint or cotton wool, and covered with gutta-percha so as to constitute a permanent bath. Preparations which contain iodine are often as efficacious as mercurials in the local treatment; among them, iodoform is in the first rank. Dr. Hallopeau insists that, in the presence of secondary or even tertiary syphilitic manifestations, we should never content ourselves with internal

treatment alone ; active local medication very materially assists all other remedies.

5. The effects of various preparations of mercury administered by the hypodermic intra-muscular method.

At the recent Congrès International de Dermatologie et de Syphiligraphie, held at the Hôpital St. Louis (*Annales de Dermatol. et de Syph.*, Jan., 1890), M. Houlky Bey, of Constantinople, asserted that these injections constituted a certain and active method of administering the drug, inasmuch as the mercury is brought into contact with the tissues themselves and absorption is direct and more rapid. Moreover, it avoids the inconveniences of all other methods, such as gastritis, irritative dermatitis, etc., and ought, therefore, to be preferred to them. The dose of the medicine to be absorbed can be easily regulated (?), and there are no special contra-indications. M. Houlky treated 541 patients in this manner, using for the most part Delpéch's peptonate, and calomel suspended in solution of gum. He does not consider that grey oil is superior, for injection, to calomel or to the oxides of the metal.

6. Intra-muscular injections of insoluble mercurial salts in the treatment of syphilis.

Dr. H. G. Klotz, of New York, states that this method has never been regarded with favour by the profession in America (*Journ. of Cutan. and Gen.-Urin. Diseases*, Feb., March, and April, 1890). Dr. Klotz has sometimes had reason to be dissatisfied with the other methods, and has, therefore, had recourse to injections. He first tried soluble mercurial salts, such as the perchloride and the bichyanide ; these yielded good results, but frequent repetition was necessary. He afterwards tried Scarenzio's method, making 210 injections in 23 patients, and using calomel, the yellow oxide (in most cases), and the salicylate. The greatest number of injections in one patient was 24 ; the smallest, 3 ; in one case the treatment extended over 266 days. An interval of seven days and upwards was always allowed to elapse between the injections. In two cases abscess occurred ; in five, very severe pain ; in one there was severe salivation after seven injections ; diarrhoea was somewhat common. If absorption be retarded and suddenly restored, symptoms of poisoning are apt to supervene. As to the effects on the disease, the early symptoms are said to be very favourably influenced, and in two cases of tertiary syphilis the results were very satisfactory. Calomel was found to be much stronger than the yellow oxide or the salicylate ; fewer injections, seldom more than four, were necessary. Dr. Klotz admits that it is often very

difficult to say whether a cessation of symptoms is spontaneous or due to treatment.

7. The treatment of syphilis by subcutaneous injections of grey oil.

In a pamphlet published a few months ago, Prof. Lang gives an account of his experience of grey oil, which was first introduced by him in 1885. He asserts that the results are very satisfactory, and that salivation and stomatitis are far less frequent and less severe under this method than after inunction with mercurial ointment. He suggests several formulæ, as follows:—"Grey ointment (strong)."—Anhydrous lanoline, 15 grammes; dissolve in chloroform, and agitate in a mortar; the chloroform evaporates and there remains a mass weighing 30 grammes, which will take up an equal weight of mercury. Triturate gently until all the chloroform has disappeared and the mercury and lanoline are thoroughly blended. "Grey ointment, 50 per cent."—Take 9 grammes of the strong ointment and add 3 grammes of olive oil. "Diluted grey ointment" consists of equal parts (50 grammes) of mercury and lanoline. "Grey oil," 30 per cent., is made by adding 6 parts of the diluted ointment to 4 parts of olive oil. This last preparation should be kept in a cool place and in small bottles, each holding 10 to 15 grammes. Before using, the bottles should be warmed over a lamp or in water up to 20° C., and not higher. The back is the best place for the injections; the first is made in the interscapular space, 3 or 4 centimètres from the median line; the next 3 or 4 centimètres below, and so on, stopping at the waist. If for any reason the buttocks are selected, the needle should be passed perpendicularly. For gummata and periosteal swellings, the injections should be made in their periphery; and in the middle of the thigh for indolent buboes in the inguinal region. In the majority of cases, on the first occasion, the injections are made in two places, from .1 to .2 c.cm. of the grey oil being used. A week or more is then allowed to elapse, and the injection is repeated either with the same or with less quantities. After .2 or .3 c.cm. of the grey oil at 50 per cent., macular and large papular syphilides generally disappear, and small papulæ and gummata are favourably influenced. An examination of the urine shows that a large quantity injected at a single point is more gradually absorbed and has a more durable action, whereas absorption is more rapid and the effects more marked if the same quantity be introduced at various points. As compared with inunctions, Professor Lang claims that in his method the dosage is more exact and the absorption of the drug more regular. In the latter respect, frictions are uncertain; in one patient, after eleven

inunctions, no mercury was found in the urine. He has never witnessed any inconvenient symptoms as a result of the injections.

8. The treatment of syphilis by subcutaneous injections of oxybenzoate of mercury.

In the *Annales de Derm. et de Syph.*, Dec., 1889, Dr. Stoukovenkoff, of Kiev, states that since May, 1888, he has used the oxybenzoate of mercury in more than 300 cases of syphilis, chancres, and blenorrhagia, and with satisfactory results. This salt contains 42 per cent. of mercury. It is white, crystalline, tasteless, and odourless. It is slightly soluble in cold water, soluble in alcohol, and almost insoluble in ether. In the syphilitic cases, a solution was made of 9·25 grammes, with 6 centigrammes of salt, in 50 grammes of water; of this a Lewin's syringe-ful was injected daily into the gluteal muscles. Little or no induration or pain was caused; there was sometimes a little smarting immediately after the injection; mercury could be detected in the urine on the first day. Three injections were sufficient for roseola, while 24 were required for gummata and periostitis. The drug was afterwards tried with vaseline and oil, a 10 per cent. suspension, but the results were less satisfactory. It was also given in pills, in daily doses of ·006 to ·02 gramme, but the therapeutic effects were less marked. Simple sores were dusted over with a mixture of the salt with some indifferent powder in the proportion of 1 to 4, or dressed with a lotion composed of ·2 of the salt to 30 of water. Syphilitic ulcers were dressed with an aqueous solution of ·15 to 200.

9. Syphilis treated by the yellow oxide of mercury administered subcutaneously.

Dr. Chernoguboff, of the Miasnitski Hospital, Moscow (*Lancet*, Oct. 12, 1889), has treated many patients with the yellow oxide, and has come to the following conclusions:—Two-grain doses cause the symptoms to disappear more quickly than smaller ones; in recent cases an interval of ten or eleven days should be allowed to elapse between the injections, and a longer interval in old-standing cases, in order to avoid salivation. The injections should be made into the cellular tissue, and not into the muscles; in the latter case, pain and abscesses are more likely to follow. Early gummata quickly disappear under the treatment; impetigo and rupia require iodide of potassium in addition; local applications do not usually accelerate the cure. As with other methods, relapses are liable to occur after two to four months. For children, a dose of one grain is sufficient. The method is contra-indicated in severe anæmia not due to the disease, in conditions of exhaustion, alcoholism, chronic inflammation of parenchymatous

organs, and extensive caries. Mercury is said to be discoverable in the urine in from four to eight hours after an injection.

10. The yellow oxide of mercury in syphilis.

Dr. Zeleneff, of Kiev, has tried this salt in 124 cases, using a 20 or 24 per cent. suspension in vaseline with vaseline oil, and injecting deeply into both buttocks, $\frac{1}{2}$ to 1 gr. being thus placed in each buttock (*Brit. Journ. of Dermatol.*, June, 1890, quoted from a Russian paper). The conclusions arrived at were that this treatment is preferable to all other methods, by reason of the precise dosage, the cleanliness, the possibility of administering large doses at long intervals, and the energetic and prolonged action of the mercury. In large doses the salt will cure any syphilitic lesion, even if of old standing, and in 94 per cent. the patients can remain at work during the treatment. The method is not contra-indicated in cerebral syphilis, old age, exhaustion, anæmia, alcoholism, etc. In 14 per cent. there were slight toxic symptoms; in 75 per cent., pain; and in 70 per cent., local infiltrations. Mercury could be detected in the urine in twelve hours, and during the course of the treatment there was evident numerical increase of red corpuscles.

11. The treatment of syphilis by periodical intramuscular injections of yellow oxide of mercury in oil of vaseline.

Dr. Galliot records 600 cases of syphilis treated by injections containing 10 centigrammes in 1 gramme of vaseline (*Annales de Derm. et de Syph.*, July, 1890). During the first month four injections were made at weekly intervals, and afterwards one injection monthly for two years. In this way 4,000 injections were employed. Neither abscesses nor other accidents occurred, and the efficacy of the method appeared to be very great; roseola did not appear in patients treated very early. Dermatitis was observed when the iodides were administered simultaneously. From examination of the blood of patients during the course of injections, Dr. Galliot concludes that the mercury favours the reproduction of red corpuscles, the number of which has been diminished by the syphilis, and that it also increases the proportion of hæmoglobin contained in the blood.

12. The treatment of syphilis by subcutaneous injections of mercurial preparations.

Prof. H. Leloir and M. A. Tavernier have given an extended trial to subcutaneous injections, having made no fewer than 1,573 in patients in various stages of syphilis, cerebral and spinal cases being excluded (*Fournier's Journal*, August and Sept., 1889). Calomel, the yellow oxide, and the grey oil, were the preparations

employed. The first was used 875 times, suspended in vaseline oil, 1 to 12; every 8 days, half a Pravaz' syringe-ful was injected into the gluteal region. The yellow oxide was used in the same way as calomel in 642 injections. Fifty-six injections were made with grey oil, one-third of a syringe-ful being used every nine days, the formula being oil of vaseline 40 gr., ether-tincture of benzoin 5 gr., pure mercury 20 gr. Antiseptic precautions and all possible care were taken. A good effect was very rapidly produced upon erythematous eruptions and the like, especially when calomel was used; and in more advanced forms of eruption the action was more rapid than that of internal treatment. Condylomata proved very resistant, requiring eight or even twelve injections. The following complications were observed in some of the cases:—(a) local pains, sometimes very severe and preventing movements for several days; (b) paresis of the lower limbs; (c) vertigo and headache; (d) buccal mucous patches four or five days after the injection; (e) local irritation around the point of injection; (f) stomatitis, generally slight, but sometimes serious and prolonged; (g) simple, or more often sanguineous, diarrhoea in the intervals between the injections; (h) cutaneous swellings, not suppurating, sometimes vesicular and containing dark or reddish serum. In many cases the patients refused to submit to this treatment. It must be very difficult of adoption in private practice. Relapses appeared to be frequent, more so indeed than after inunctions.

Drs. Leloir and Tavernier's conclusions as to the value of these injections are as follows:—(1) They should be reserved for erythema and slight syphiloma of the integument; (2) they should be used when rapid disappearance of such eruptions is especially desirable; (3) the method is suitable for hospital patients and for those who can be kept in bed some days, and for prostitutes; and (4) when slight action is required upon syphilitic affections of the mucous membrane; (5) it has no influence in preventing early relapses; (6) it fails in many cases in which inunction succeeds; (7) it should not be used for advanced symptoms unless the integument is alone affected; it is contra-indicated in cerebral, spinal, and visceral lesions, and for pregnant women, and children. Its sole advantage is its rapid action upon some forms of erythema and other early symptoms. Inunction is generally to be preferred; after the eruption has disappeared the perchloride or protoiodide may be given in pills, inunction being repeated from time to time, and especially on the reappearance of any eruption. Iodine should be withheld until the second year.

13. Salicylate of mercury as a remedy for syphilis.

Dr. Büchler, of New York (*Journ. of Cutan. and Gen.-Urin. Diseases*, May, 1890), states that his experience of this drug tends to confirm the statements of Drs. Araujo, Szadek, and others. He gave $\frac{1}{2}$ gr., in pill or tablet form, three times a day, and found that the action was sufficiently energetic to cause speedy disappearance of various lesions, without unduly irritating the gastro-intestinal tract, or affecting the economy in general. Among 32 cases there were only 3 in which any symptoms of mercurialism became developed. The efficiency of the drug was displayed in one case of relapsing circinate syphilide of the face, which entirely disappeared after 45 pills had been taken. Enlarged glands yielded but slowly, though the drug seemed to act very favourably on enlargement of the spleen associated with the early secondary stage.

14. The salicylate of mercury as a remedy for syphilis.

Dr. Schwimmer asserts that the salicylate of mercury is an excellent antisyphilitic, and that its action resembles that of mercurial ointment (*Annales de Derm. et de Syph.*, Feb., 1890). It is more active than the sublimate, protoiodide, or tannate; its power almost equals that of calomel. It passes rapidly into the circulation, and is quickly excreted by the kidneys; it sometimes causes erythema and urticaria. In 6 patients thus treated, after 15 to 25 grains had been given during 6 to 8 days, the urine presented traces of mercury; in some cases, elimination by the kidneys was proved after less than a grain had been taken. The rapidity of absorption accounts for the frequency with which stomatitis occurs; the drug is somewhat irritating to the organs of digestion, and should therefore be prescribed in combination with opium in some form. Dr. Schwimmer recommends the following: salicylate of mercury, .50; laudanum, .10; sugar, 3 grammes; to be made into 10 pills, of which 2 are to be taken daily.

15. Tannate of mercury in the treatment of syphilis.

Dr. Petrini, of Glatz, has treated many cases of syphilis with the tannate of mercury, and with satisfactory results (*Lancet*, March 15, 1890). It has a very decided action on the disease, and very seldom causes stomatitis or other inconveniences. It is mainly eliminated by the saliva, and only to a small extent by the kidneys. Three grains were given daily for a lengthened period without causing stomatitis; but for most cases it is

sufficient to give two-thirds of a grain in a pill with extract of gentian once daily with a meal, and to double the dose after ten or fourteen days. The remedy should be continued for twenty-five to thirty days, or until the symptoms have passed off.

16. Treatment of syphilis by means of calomel plasters.

At a recent meeting of the "Société Française de Dermatologie et de Syphiligraphie" (*Annales de Derm. et de Syph.*, May, 1890), M. Quinquaud recommended the application of calomel plasters to the region of the spleen as a method of treating syphilis. The application is composed of diachylon plaster, 3,000 grammes; sublimed calomel, 1,000; and castor-oil, 300. It is spread upon a piece of linen or leather about four inches square, and before applying it the skin should be thoroughly cleansed. It is allowed to remain for eight days, and then removed; after a week has elapsed another plaster is applied, and the treatment is repeated as long as may be necessary. If the patient be engaged in manual labour, the plaster should be allowed to remain for five or six days only. The appearance of mercury in the urine proves that the remedy has been absorbed. From this treatment M. Quinquaud has obtained good results in papular and tubercular syphilides and in condylomata. Salivation is generally avoided, but if it be wished to produce this symptom the size of the plaster should be doubled. The advantage of the method consists in the fact that an infinitesimal quantity of mercury is constantly passing into the system and producing an effect upon the tissues.

17. Iodol in the treatment of syphilis.

Dr. Carl Szadek recommends iodol in the treatment of syphilis, and states that it may be given internally in doses of four or five grammes daily (*Wiener Med. Presse*, 1890, Nos. 8, 9, 10). Its therapeutic action in syphilis is absolutely identical with that of other preparations of iodine, but it is more slowly eliminated. The iodide of potassium acts more rapidly and energetically; it may be replaced by iodol when a durable but not intense action is required. Dr. Szadek has used the drug internally in twenty-two cases of syphilis, and externally in twenty patients suffering from soft sores. To the former it is given in powders enclosed in unleavened bread, and in doses of from one-half to one gramme daily. The remedy is well borne, and the results are very favourable. To soft sores and to ulcerating buboes iodol is applied in powder, generally with a little bismuth or alum added,

THE DISEASES OF WOMEN.

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Introductory.

There has been little novel this year. The Berlin Congress gave specialists an opportunity of discussing various points; but the proceedings were harmonious, and consisted chiefly in an amicable statement of opinions. Some of the papers have been summarised; but as the Transactions have not been as yet published, full notice must be deferred till next year. Apostoli's treatment has not made any special progress; and, while it has diminished operative work on fibroids in England, it has not done so in Germany. Total vaginal extirpation is now accepted in Germany as the operation in all suitable cases of cancer, and there is additional literature in regard to methods other than the vaginal. Its progress in Britain is very slow. Upon the whole, the year's record is eminently satisfactory.

1. On the present position of abdominal surgery.

Mr. Meredith (*Lancet*, April 19, 1890) gives here an interesting and dispassionate account of the present position of Abdominal Surgery in Britain. He points out how very much wider the field for legitimate surgical interference has become even in the last twelve or fourteen years, and how greatly the mortality following abdominal operations has decreased; and he recalls the fact that in the series of 150 ovarian cases published by Sir Spencer Wells in 1882, the mortality was 19·3 per cent., and that of these deaths more than three-quarters were due to septicæmia or septic peritonitis, while at the Samaritan Hospital the mortality in 1889 was only 4·3 per cent. The improvement shown by these and other more recent statistics he ascribes to the adoption of intra-peritoneal ligature of the pedicle in place of the clamp; to more complete recognition of the absorbent powers of the peritoneum, both for good and evil; to the fact that many of the earlier cases were long-deferred operations, where there had

been many previousappings; to the application of antiseptic practice to this department of surgery; to the introduction of glass drainage-tubes, used with discretion; and to the plan of flushing out the peritoneal cavity. Flushing with water free from actual septic contamination, but without the addition of antiseptics, in addition to its mechanically cleansing action, dilutes and breaks up noxious fluids and substances, so that the peritoneum can absorb what is left without injury to itself, and after absorption these substances can be destroyed and excreted. In order not to interfere with these processes, he would lift the use of opium in the after-treatment to cases where it is required for the relief of pain, and he points out the value of saline purgatives in early peritoneal mischief, which are to be replaced by belladonna in cases where there is any obstruction to peristalsis.

Uterine tumours.—The mortality in Sir Spencer Wells's cases (before 1880) was 47 per cent., while in the 82 hysterectomies at the Samaritan hospital, in the last four years, there have been 15 deaths—a mortality of 18·2 per cent. This reduction Meredith maintains is due in great measure to the extra-peritoneal treatment of the stump by Koeberle's *serre-nœud*, but also partly to greater familiarity with the details of the operation. The cases which give rise to the greatest difficulty are those where the growth has extended under one or both of the broad ligaments, and where extensive enucleation is necessary in order to form a pedicle for the *serre-nœud*. He points out the danger of hæmorrhage in these cases (to be avoided by securing the ovarian vessels), gives details of the operation, and insists especially on the importance of securing the parietal peritoneum closely round the stump, to protect the cavity from the dangers engendered by the necrosis of the constricted tissues. Removal of the appendages for the arrest of hæmorrhage due to fibromata is a valuable alternative to hysterectomy in suitable cases, and here the most important points are to avoid puncture of any of the enlarged vessels of the pampiniform plexus, and to remove *all* the ovarian tissue; if this is not done, hæmorrhage is almost sure to recur.

Removal of the uterine appendages for disease.—Mr. Meredith discusses the advisability of this operation in view of the fact that even in the most skilful hands the mortality is still 1 in 20 (or a little less), and points out that, as regards the *nature* of the cases in which the operation is indicated, it certainly should be performed in conditions where, as in advanced suppurative or hæmorrhagic disease of the tubes, there is more or less actual risk to life if the diseased organs are not removed; while the

indications for operation are much more difficult to define in chronic inflammatory diseases of the ovaries, where prolonged invalidism, rather than danger to life, is threatened. In these cases a course of persistent treatment of a general and *not* a local character, directed to the relief and avoidance of pelvic congestion, should first be tried, and only after its failure should operation be suggested. The symptoms of "cirrhotic ovaries" are so largely neurotic that it is questionable whether extirpation of the organs is of much service. As to the ultimate results of removal of the appendages for chronic inflammatory disease, we require more carefully sifted evidence than we possess. We must recognise that complete restoration to health is often deferred for some years, and in cases which are complicated by a neurotic taint there may be an entire failure to produce relief from suffering.

Extra-uterine gestation.—Mr. Meredith first gives a *résumé* of Mr. Lawson Tait's views as to the way in which this accident occurs, the history of the sac and the foetus, and the diagnosis of the condition, and remarks that if the diagnosis could be made before rupture of the sac had occurred, the proper course in the interstitial variety would be to puncture and evacuate the sac through the uterine cavity, while in the tubal form abdominal section and removal of the affected tube would be required. Extra-peritoneal rupture into the broad ligament requires no active interference at the time; if the foetus dies it had better be left to be absorbed, but if suppuration takes place the sac must be treated as an ordinary pelvic abscess. If gestation is not arrested the foetus may develop in the pelvic tissues, and be extracted as a viable child, or the sac may burst—a secondary rupture—and the pregnancy become an abdominal one.

Primary intra-peritoneal rupture of the sac is almost uniformly fatal, either by hæmorrhage or peritonitis, unless the tube is early removed by abdominal section. In *advanced* cases of ectopic gestation operation should be deferred till the full term, if the child is alive; if it is dead there need be no delay. Mr. Tait, in view of the probable extra-peritoneal origin of the sac, advises a lateral incision on the side of presumed origin, to avoid opening the peritoneal cavity if possible. The placenta may either be left *in situ*, and the sac drained—a tedious and somewhat dangerous method—or Mr. Tait's plan may be adopted, which consists in flushing the sac by the syphon trochar after sutures have been inserted, then emptying the sac by the syphon, tightening the sutures so as to seal the cavity hermetically, and then withdrawing the trochar.

Treatment of obstructed labour.—Here the operations of Porro

and Säger are a decided improvement upon craniotomy, giving a chance of safety, as they do, to both mother and child. The details of Säger's operation are given very clearly.

Peritonitis.—The treatment of the tubercular form by abdominal section, removal of the fluid, and closure without drainage, is now a well-recognised procedure, and a chance is afforded of arresting what is sometimes at first a purely local affection. The attempt to treat the suppurative puerperal form in a similar way has not been attended with the same success, and it is to be feared that its association with suppurative metritis will always be a bar to this mode of treatment.

Pelvic abscesses.—These are now treated by abdominal incision and drainage—a great advance on the vaginal method. Great care should be taken to avoid opening the peritoneum, if possible, and the edges of the opening in the sac must be sutured to those of the abdominal incision.

The rest of the paper treats of the surgery of the liver, kidney, spleen, and pancreas.

3. The laparotomies of the Berlin University Gynecological Clinic for 1887–1890.

Olshausen (*Festschrift of Berlin Obstetrical Society*) gives in this paper a valuable account of the laparotomies performed by him during the last three years (1887 to 1890).

Antiseptic precautions were most carefully carried out. All laparotomies were performed in a special room. Sponges were preserved in four series in a watery solution of corrosive sublimate (1 in 1000). Instruments were disinfected by being kept in dry hot air at 120° to 130° C. for two hours on the evening before the operation. Shortly before the operation they were placed in carbolic solution (2½ per cent.). The sponges were wrung out of carbolic acid (2½ per cent.) during operation, and touched only by the operator and his assistant. The usual antiseptic precautions were used in regard to the patient and the operator's hands.

Despite all this there was a series of bad cases in September and October of 1888. Of 17 consecutive major operations (12 laparotomies and 5 vaginal total extirpations, 8 ended fatally. These 8 deaths were in two series of 4, there being 6 successful ones between. In the first of the first series of four fatal cases the tumour was a suppurating ovarian; the second case of the second series was the same, and these seemed to be the starting-points of the mischief. Olshausen considers washing out the peritoneal cavity with disinfectants dangerous. He does not condemn necessary sponging. In no case was a vaginal drain employed, and in some cases of

severe hæmorrhage, *e.g.*, soft sarcoma of the mesentery, the iodoform tampon was used. In cases of intra-ligamentary tumours it was also employed for 24 to 36 hours, and the abdomen fully closed after its removal. The after-treatment employed is much the same as that in use in Great Britain.

The cases are as follows :—

Ovariectomies and Parovariectomies	296
Salpingotomies	23
Castrations	22
Ventrofixations	6
Myomectomies	45
Extra-uterine pregnancies	13
Fibromata of abdominal wall	7
Extirpations of kidney	3
Lipoma of kidney capsule	2
Sarcoma of mesentery	3
Multiple echinococci of the abdominal cavity	2
Tumours of broad ligament	4
Excisions of ovarian residua	2
Exploratory cases	28
Sarcoma uteri (total removal)... ..	1
Pelvic abscess	1
Foreign body in abdomen	1
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As regards the pathology, it was as follows :—

Parovarian cyst	18 = 6.1 per cent.
Glandular cystoma	181 = 61.1 "
Papillary "	33 = 11.1 "
Dermoid "	29 = 9.8 "
Fibroma and fibro-sarcoma	10 = 3.4 "
Carcinoma	19 = 6.4 "
Teratoma	1
Tubo-ovarian cysts	2
Corpus-luteum cyst	2
Hæmatoma of ovaries	1

The death-rate in ovarian tumours was 10 per cent., as follows :—

Glandular cystoma	6 = 3.3 per cent.
Papillary "	6 = 18 "
Dermoids	4 = 14 "
Fibroma and sarcoma	5 = 50 "
Carcinoma	9 = 47 "

H. W. Freund has recently published results showing somewhat more favourable results as to the prolongation of life by operations in malignant cases. Olshausen believes these cases to be exceptional; but when there was much ascites, has seen the

patient relieved by operation. Parovarian cysts, when not pediculated, he has always enucleated. In 11 cases of the 296 ovariectomies, pregnancy was present, and all ended favourably. Torsion of the pedicle occurred in 23 cases (8 per cent.); and in 64 cases the ovariectomy was double. Of the 6 ventrofixation cases, 2 at least were much benefited, one of them having a fixed retroversion as the result of gonorrhœal salpingitis. The results of this operation have as yet been very encouraging. The cases must, however, be carefully selected. Olshausen uses silkworm sutures, and passes them deeply through the musculature of the abdominal wall. In cases where future conception is to be deprecated, the suture can include the Fallopian tube and broad ligament; in others it passes through the round and broad ligaments as well as through a part of the uterine wall. In subsequent pregnancies the adhesions yield.

Myomata.—Olshausen recommends removal of the appendages in interstitial tumours the size of a five or six months' pregnancy. In others he practises myomectomy, after careful observation of the cases. In 29 cases, where the uterine cavity was opened, he had 8 deaths; in 16, without this opening, 2 deaths. A third case died shortly before dismissal, from pulmonary embolism. In 45 cases, therefore, of myomectomy, the mortality was 22·2 per cent. The opening of the uterine cavity, with increased risk of sepsis, the anaemia before and as the result of the operation, give this high mortality as compared with ovariectomy. Winter's researches, showing that, while micro-organisms do not exist in the healthy uterine cavity, they are present in the cervical canal in half of the cases, are of evident importance.

3. Operation in fibroid tumour.

Martin (*Festschrift of Berlin Obstetrical Society*) here gives his experience in the treatment of fibroid tumours of the uterus. He has never seen a cure from the use of *ergotin*, although the hæmorrhage may be lessened and shrinking produced. The treatment is not without danger, and he would not recommend a trial in cases which had not undergone treatment, nor an extensive use of it if the symptoms did not speedily yield. *Electrolysis* he has noticed check the growth of small fibroids, as well as diminish the bleeding. In some cases 50 intra-uterine applications of 100ma. were made in the usual manner. In one case there was arrest of the growth for a year; and in another, expulsion of the tumour as polypi—unfortunately the patient died from embolism. In another case pain was increased, and the tumour therefore removed successfully by operation. One case is specially recorded where pain increased after 25 applications of electrolysis,

and where enucleation was performed (by laparotomy). The patient died suddenly from internal hæmorrhage, due to too early absorption of the continuous catgut suture. Other cases are given illustrating the failure of electrolysis, and how it may complicate after-treatment by operation. In 12 cases where electrolysis was applied, operative treatment, with a less favourable prognosis as the result of the electrolysis, had to be undertaken. He finally points out that electrolysis is still empirical, and that in 5 cases of so-called myoma submitted to this treatment the real disease was tubal and ovarian.

A tolerably large number of cases of fibroid must be treated operatively. Martin's ideal of operative treatment is one where the new growth is removed and the uterus left capable of its functions. The various operative methods are as follows :—(1) Enucleation per vaginam ; (2) vaginal extirpation of the uterus ; (3) removal of pediculated subserous fibroids, or their enucleation after laparotomy. Before 1886 Martin had practised removal of the uterine appendages 7 times for myoma, but not since then. He promises details of his cases, but points out that the bleeding may persist, and that he has seen the tumour grow after castration, and the castration act deleteriously on the patient's condition.

(1) *Enucleation per vaginam*.—Here the size of the tumour is everything ; and in large tumours it is very dangerous, if not impossible. The peritoneum may be injured, and adhesions to neighbouring important viscera damaged. In 2 cases brought into hospital after such attempts, sepsis had taken place, and both died. In large tumours partly enucleated and strangulated, he has practised laparotomy. In 31 enucleations, 6 died—3 from anæmia (and of these 2 with peritoneal injury), and 3 from septicæmia. He agrees with Leopold, that one should not enucleate tumours larger than a child's head.

(2) *Vaginal hysterectomy*. (*Vide Frank's paper, p. 314*).

(3) *Hysterectomy, or enucleation of the myoma by laparotomy*.—The great majority of fibroids requiring treatment must be removed by laparotomy. Not only in the pediculated form can the tumour alone be removed after suitably securing the pedicle, but tumours really intraparietal can be enucleated after laparotomy, and the bed secured by the continuous suture, and thus the uterus and appendages left capable of function. Martin has, since 1880, operated in 96 cases by this method. In 24 the uterine cavity was opened, and of these 8 died. Of the 72 where the uterine cavity remained intact, 10 died. It should be kept in mind, however, that in the 72 cases the tumour was

enucleated five times from the pregnant uterus ; and of these five 2 died after expulsion of the ovum, and a third from double calculous pyelo-nephritis. In the remaining 7 fatal cases, 1 had fever before operation, 2 died from after-hæmorrhage, 2 from sepsis, and 2 from anæmia. Enucleation by laparotomy can be had recourse to when the tumours are multiple, and in only 2 cases have fresh tumours appeared. There is also the possibility of conception and successful labour after the operation, as in cases published by Hegar and Krönlein.

(4) *Extirpation of myomatous uterus by operation.*—As all know, the usual method of treating large fibroids requiring operation is by supravaginal amputation, the stump being treated extra-peritoneally. In 135 cases Martin has in all had 46 deaths. Of these Martin lost his first 6 consecutively. The prognosis improved after the intraperitoneal method, and also after drainage of the pouch of Douglas was added. All know the danger of supravaginal amputation ; and, therefore, Martin has adopted the bold method of excising the cervix after supravaginal amputation, thus removing the part that causes the mischief either by its putrid discharges or its secondary hæmorrhage. He operates by opening the abdomen, turning out the tumour, constricting the neck, and amputating above this. The stump and broad ligaments are then secured by silk ligatures, and the cervix removed from above, as follows :—The pouch of Douglas is projected up by the finger of an assistant passed vaginally, and the posterior fornix opened into. The edges of this incision are then sutured. The lateral and anterior attachments are next severed, and the wounds closed. There can be no doubt as to the formidable nature of this operation, although Martin remarks that it is easier to do than it appears. The separation of the cervix anteriorly may be complicated by a wide attachment of the bladder. As a rule he does not drain. In 30 cases there were 8 deaths (about 27 per cent.), but of these only 1 from sepsis ; 1 died from embolism, 3 from pre-existing anæmia, 2 from bowel paralysis, and 1 from secondary hæmorrhage. In the cases of bowel paralysis, eventration was not employed during the operation ; and Martin does not believe it to be a cause of this obscure condition.

Martin sums up his opinions on the operative treatment of fibroids as follows :—

(1) Enucleation by the vagina where the tumour is small and being expelled.

(2) Multiple myomata, with uterus mobile, and of such a size as to allow its passage through the vagina ; vaginal hysterectomy.

(3) and (4) Larger tumours should be removed by ligature of pedicle or by enucleation after laparotomy, and uterus and appendages left intact.

(5) When the tumour cannot be removed without the uterus, it is better to extirpate the whole organ, and thus avoid the treatment of the pedicle.

4. The operative treatment of uterine myoma by vaginal enucleation, castration, myomectomy, and vaginal total extirpation.

Leopold (*Arch. für Gynäk.*, Bd. xxxviii., Hft. 1) gives in this paper his experience in the matter of fibroids. Generally speaking, his aim is to settle so far as is possible what cases are best for special procedures, the relation these bear to one another, the improvements to be carried out, and the errors one makes and must avoid. Leopold's observations are based on 400 cases, of which 140 were operative. We pass over his remarks on etiology, symptoms, anatomical varieties, etc.

In *Treatment* he has found the subcutaneous injection of ergotin valuable. In tablets, too, he has found ergotin and hydrastis canadensis of service. Electricity does not promise much, and in three cases he has seen it ineffective. The curetting of the endometrium, incision of the capsule or dilatation by tents, are stronger remedies. Curetting can only be carried out in the smaller interstitial and subserous tumours. With antiseptic precautions and careful dilatation with laminaria tents he has seen no bad after-effects. The mucous membrane is scraped, swabbed out with 5 per cent. carbolic acid, dried with salicylic wool, and lastly, liquor ferri perchloridi is applied.

The following table gives the treatment adopted :

	No.	NATURE.			
		Submucous.	Interstitial.	Subserous.	Mixed.
Vaginal Enucleation	28	23	...	...	5
Castration	36	...	22	2	11
Myomectomy	56	...	28	12	16
Total Extirpation per vaginam . . .	21	...	12	5	4
	140	23	62	19	36

Enucleation.—This, as is now well established, may be done in all cases where bleeding is bad and the tumour accessible; of course, when the tumour is partly borne into the vagina, this

procedure is imperative. The prognosis is not so good when the operation has to be performed with the cervix undilated. The mortality in this operation is higher than is often thought. Thus:

Lomer found in 112 operations a mortality of 16 to 18 per cent.				
Gusserow	"	"	"	14 to 16 "
Schröder	"	"	"	23 "
Hegar-Kaltenbach	"	"	"	19 "
Frankenhäuser	"	"	"	13 "
Martin	"	"	"	18 "
Chrobak	"	"	"	6 "

Leopold has 1 death in 28.

Castration.—Of this Leopold speaks very favourably, and his opinion may be contrasted with Martin's. He performed it in 34 cases for bleeding fibroids, and with a mortality of 11 per cent. Of his last 19, however, none has died [and this shows that mortality diminishes as skill increases]. The mortality in other operators' cases is as follows:

Hegar in 132 cases had 12 per cent. mortality.

Lawson { 246 cases had (1st thousand laparotomies) 7 per cent. mortality.

Tait in { 148 " (2nd " " ") 2.03 " "

Olahausen in 21 cases had 19 per cent. mortality.

Martin	"	7	"	14	"	"
Fritsch	"	11	"	18	"	"
Schröder	"	24	"	4.5	"	"
Hofmeier	"	15	"	20	"	"
P. Müller	"	21	"	4.7	"	"
Tauffer	"	17	"	0	"	"
Leopold	"	98	"	11	"	"

The average mortality in all is about 8 per cent., much the same as the 10 per cent. Wiedow found in 149 cases.

Of Leopold's 34 cases 24 only were complete, and all of these ceased to menstruate, were restored to health, and the tumours became smaller.

Leopold insists on scrupulous antisepsis, rapidity of operation in anæmic cases, as well as minimising the amount of antiseptic used. He prefers a large incision, ties first the broad ligament with a double silk ligature, and then cuts away the tube and ovary. He then ties each stump deeper, and touches it, if necessary, with Paquelin's cautery.

Removal of tumour by laparotomy with or without amputation of uterine body.—Of this operation there were 56 cases, with a mortality of 21.2 per cent. In the cases treated intraperitoneally the mortality was 22.7 per cent.; in the extraperitoneal method 20 per cent. In fifteen cases where the uterus was

opened there were five deaths, all from sepsis. The causes of the seven deaths in the extraperitoneal method were as follows :—three from hæmorrhage, three from shock, and one from ligature of ureters. The results of other operations are as follows :—

Schröder	in 164 cases	had 29 per cent. mortality.
Martin	" 86	" " 17 " " "
Gusserow	" 33	" " 7 " " "
Olahausen	" 29	" " 31 " " "
Hegar	" 31	" " 32 " " "
Kaltenbach	" 33	" " 13 " " "
Braun	" 38	" " 15 " " "
Tauffer	" 31	" " 19 " " "
Fehling	" 14	" " 21 " " "
Frommel	" 15	" " 0 " " "
Landau	" 36	" " 8 " " "
Hofmeier	" 6	" " 0 " " "
Fritsch	" 60	" " 16 " " "
Zweifel	" 28	" " 2 " " "
Leopold	" 56	" " 21 " " "

Myomectomy he believes to be indicated when the tumour is larger than a child's head, is growing rapidly, or is causing undue bleeding or pressure not yielding to ordinary remedies ; or where, through unfavourable changes in the tumour itself, the general health is injured. Where possible, one wishes good cardiac conditions, no thrombi, a fair amount of fat. One may operate on anæmic patients if the musculature is good. Leopold prefers an extraperitoneal method much like Keith's procedure.

Copious tables of cases are given.

5. A contribution to the indications for vaginal hysterectomy.

Frank (*Festschrift of Berlin Obstetrical Society*) gives an account of several cases of total extirpation of the uterus performed by Martin for the following conditions :—(1) Ten cases where it was performed for myoma ; (2) seven cases for prolapsus uteri ; (3) one case of perforation of the puerperal uterus ; and (4) one case of pyometra.

(1) *For myoma*.—The following is one of the cases :—Frau P., aged 34, had suffered for a year and a half from dysmenorrhœa, menorrhagia, and fluor albus, owing to a small myoma on the anterior wall and fundus. She had undergone treatment for long by means of ergotin, tamponnade, dilatation, ice-bag, etc. Marked anæmia resulted, and therefore the uterus was curetted, and advanced endometritis found. This was without effect, for the bleeding continued. The uterus was extirpated accordingly, with difficulty, and the case ultimately did well. The reporter

lays stress upon the fact that in all the cases palliative treatment had been abundantly but fruitlessly tried.

(2) *Case of Prolapsus*.—Frau Bl., 52 years of age, had complete prolapse, with uterus the size of two fists, marked erosion of everted lips of cervix. Under chloroform, condition irreplaceable, and therefore total extirpation of uterus, followed by anterior and posterior colporrhaphy six weeks afterwards.

All the cases recovered.

6. The surgical treatment of uterine myoma.

Lawson Tait (*Brit. Med. Journ.*, November 1, 1890).

Mr. Tait has now a series of 327 consecutive cases of removal of the uterine appendages for this disease, with 6 deaths, giving a mortality of 1·8 per cent., and he claims that this justifies the adoption of this operation as a means of treatment. He maintains that the cure begins at once, and is generally completed in six months, though in about 6 per cent. it is protracted over a period from 12 to 36 months. There are only five cases out of the whole series of 321 which have been complete failures as regards relief of symptoms. Three of these failures have already been submitted to hysterectomy, and in each of these cases the ovaries had been completely removed, but one tube had been left, and Mr. Tait thinks that these cases justify him in assuming that it is more necessary to remove the tubes than the ovaries. Five other cases are incomplete, 3 dying from other causes before a definite result had been obtained, and 2 dying from causes connected indirectly with the operation. This leaves 311 cases in which cure has been complete. The only objection to the operation is the occasional difficulty of completing it; in about 4 per cent. of the cases it was found impossible to remove the appendages, and in these hysterectomy was performed, and of course in other cases of very large tumours hysterectomy was deliberately intended from the first.

As to the disappearance of the tumours after the operation, the age of the patient has a good deal to do with it. Thus, under 40 years of age, about 70 per cent. of the tumours entirely disappear; between 40 and 45 they do not disappear, but diminish markedly; and after 45 the diminution is only a shrinking, though there are exceptions to these general statements.

He considers further that this series of cases affords proof that removal of the ovaries has nothing to do with the arrest of menstruation, as in many cases of removal of the ovaries menstruation has gone on regularly for many months, while in sixteen cases where the ovaries were not removed, while the tubes were removed, menstruation stopped at once. Still Mr. Tait thinks that it is

not the removal of the tubes so much as the destruction of a nerve lying between the tube and the round ligament which has to do with the arrest of menstruation, as he considers that this is the efferent nerve governing the periodicity of menstruation.

7. Nine consecutive cases of myo-fibroma of the uterus. Eight supra-vaginal hysterectomies and one myomectomy; no death.

Wm. Tod Helmuth. (*Amer. Journ. of Obstetrics*, June, 1890.)

The title of the paper speaks for itself. The cases were all difficult and complicated, but nevertheless made good recoveries. In two of the cases, the myomectomy, and one in which part of the uterus only was removed, the stump was left inside the abdomen, in the other cases it was kept outside.

8. Laparotomy with the pelvis elevated (Trendelenburg's position).

Leopold (*Centr. für Gynäk.*, 1890) has performed laparotomy in 64 consecutive cases with the patient in Trendelenburg's position, i.e., dorsal, but with the pelvis raised. The advantage of this position is that the small intestines pass downwards to the diaphragm, and if a broad sponge be placed in the umbilical end of the wound the pelvic organs are quite accessible, and can be most accurately exposed and treated. A special table is required, but this is quite simple. In this series there were 21 ovariectomies, 6 castrations, 6 extraperitoneal myomectomies, 8 hysterectomies, 6 Cesarean sections, and 8 extra-uterine pregnancies. There were no special bad results of the position except a little cyanosis in some cases.

9. The drainage of the abdominal cavity in laparotomy.

Sänger (*Arch. für Gynäk.*, Bd. xxxix., Hft. i., S. 141) prefers the glass drainage-tube combined with sterilised iodoform gauze. This is indicated in cases of chronic inflammation, cases where there is risk of hæmorrhage from broad adhesions after rupture of a purulent sac. He had drained in 14 cases, with only one death from exhaustion.

Lawson Tait believed that only dead or dying matter putrefied, and therefore this, as well as blood and serum, should be removed. This was much more certain than the destruction of germs. The drainage-tube protected further against secondary bleeding, and was necessary where the rectum or other pelvic viscera were wounded. Bantock also supported drainage, on the ground that it removed a nidus for micro-organisms.

10. Tamponnade of the abdominal cavity.

Walcher (*Centr. für Gynäk.*, No. 46, 1890) describes a method

of arresting hæmorrhage otherwise uncontrollable. He uses glass drainage-tubes about an inch in diameter and 6 in. to 10 in. long, through which he passes a strip of iodoform gauze. In a case, for instance, of marked bleeding from the depth of the pelvic cavity, Walcher would proceed as follows: He passes a sterilised glass tube into the pelvis, placing its lower end at the bleeding point. He then stuffs a strip of iodoform gauze two inches wide through the tube, and thus the gauze issuing from the lower end acts as a plug. The abdominal wound is then closed, and the plug removed on the second day. It may be re-applied if necessary. In seven cases where it was employed no bad results followed. It prevents the passage of flatus, but Walcher alleges that this has not done harm.

[In oozing from the pelvis the use of the drainage-tube is enough. Where bleeding is marked it is much safer to lift out the small intestines after enlarging the incision, and suture the bleeding point with catgut. Walcher's procedure would be admissible only in a large surface.]

11. The treatment of uterine tumours by electricity.

Thomas Keith and Skene Keith, 1889.

This is a collection of 106 cases—the story of every patient with uterine tumour who was treated by electricity up to the end of the year 1888. The cases are related with a great deal of graphic detail, and with much impartiality, and, where possible, the patients themselves are allowed to express their opinion of the amount of benefit derived from Dr. Keith's treatment. No tabulation of the cases or statistics would give a fair impression of the results, as the improvement obtained depends so much on relief of subjective symptoms, a relief which is quite disproportionate to the diminution in size of the tumours. No testimony in favour of Dr. Apostoli's treatment could be more interesting than Dr. Keith's statement that, in spite of the comparatively low mortality with which the operation of hysterectomy was attended in his hands, he has ceased, since he began treatment by electricity, to perform any operation on the uterus by abdominal section; that he believes Apostoli's method to be the right treatment, and that not only has he abandoned hysterectomy in these cases, but has given up even the minor operation of removal of the ovaries. He points out, however, that some cases are better suited for treatment in this way than others, and that the most suitable cases are those which are suffering from hæmorrhage, where the bleeding is so profuse that something must be done, and where a few years ago the propriety of operation would have been considered.

12. On the treatment of pelvic disease by electricity.
R. Milne Murray (*Edin. Med. Journ.*, November, 1890).

In this paper Dr. Murray discusses in an impartial and eminently scientific manner the results of treatment by the galvanic current in forty-five cases. These cases are divided into four tables, and, in addition to the usual details, he introduces into the description of each case a calculation of the total quantity of electricity employed from first to last, expressed in ampère-seconds or coulombs, the figures given being obtained by multiplying the current in ampères by the time in seconds for each application, and taking the sum of the results.

The first table contains twenty-three cases, in which the most prominent features were hæmorrhage and consequent anæmia; in eighteen cases the cause of the hæmorrhage was a fibroid tumour; in five, endometritis and chronic metritis were the cause. In five cases the treatment was prematurely discontinued; but of the remaining eighteen, seventeen were definitely relieved, the hæmorrhage being checked by the first three or four applications, and, as a natural sequence, the health and appearance of the patients improved. Dr. Murray finds that it is most convenient to apply the current twice a week, and he employs the intra-uterine positive pole. Much larger currents can be borne by patients suffering from hæmorrhage than by those who suffer mainly from pain, and the results have improved since he began to use a shorter internal electrode, where the exposed metallic part is only $\frac{1}{4}$ inch in length. This concentrates the current, and the different parts of the uterine cavity can be successively treated by the use of a graduated slide. No application is made during the first three days of the menstrual period, but treatment is begun again as soon as these days are over.

The second group of cases includes those in which pain was most prominent, and it embraces fourteen cases. The cause of the pain varied—it was in some cases caused by a fibroid, in others associated with hæmorrhage, in others due to a perimetric deposit, and in some to ovaritis. In two cases treatment had to be discontinued prematurely; of the others, seven were greatly relieved, while five were not materially benefited. The cases where the most marked relief was obtained were those where an exudation was the cause of the suffering. One case is narrated where the abdomen had been opened to see if there were any possibility of interfering with the cellulosic deposit by drainage (it was giving rise to the discharge of pus from the rectum), where it had been found impossible to interfere, and where the electrical treatment in seven months removed the pain, restored

the pelvis to a practically normal state, and enabled the patient to return to her home duties. Dr. Murray does not believe that the galvanic current is suited to cases where there is definite organic change in the ovaries, but considers that here faradism may possibly be of service.

The third table contains those cases where the tumour, by its size or position, gave rise to mechanical inconvenience, and contains only three cases, none of which derived much benefit, nor was there in any a noticeable decrease in the size of the tumour. In a case drawn from Table I., however, the mass diminished from the size of a fist to that of a hen's egg, while in several others the tumour became more mobile, and of course in these the hæmorrhage, which was the prominent symptom, also disappeared. The fourth group includes cases of subinvolution with endometritis, five in number, and in all of these the cure has practically been complete. In one case, where there had been repeated early abortions, and everything else had been tried, the patient since treatment has been delivered of her first full-time child.

Dr. Murray expresses himself strongly as to the risk of negative puncture, and does not employ it in any case where it is possible to pass the sound into the uterus. Where this is impossible, and the hæmorrhage is urgent, he would employ puncture, in the hope that it might modify the tumour so as to allow the uterus to be reached and the sound to be passed.

The second part of the paper is occupied by a very able exposition of the way in which Dr. Murray believes that the galvanic current acts on the tissues. As a result of direct experiment, he points out that the current cannot act by decomposing or electrolysing the tumour directly, nor can the diminution in size which sometimes occurs be due to the secondary caustic action of the acid and alkaline bodies liberated at the electrodes. He explains the action of the current rather by consideration of the structure of the tumour. A fibroid is essentially non-vascular; though large veins are found in it, there is no true capillary structure; it is surrounded, however, by a very vascular capsule, and it is from this that hæmorrhage arises in the submucous variety, where the capsule presses upon or is coincident with the mucous membrane of the uterus. If in these cases this capillary structure could be destroyed, the hæmorrhage from the uterine surface of the tumour would cease; and Dr. Murray maintains that the positive pole (which, it is well known, produces a coagulum in the tissues in contact with it) causes clotting of the blood in the smaller vessels of the uterine surface of the

capsules, and their consequent obliteration ; whilst it may happen that the vessels so destroyed may, in some cases, have formed a large part of the nutritive channels to the tumour ; and this may not only explain the reduction in size of the tumour, but also the fact that this only exceptionally occurs. The absorption of cellulitic deposits seems however to require another influence, and this Dr. Murray finds in the electrolytic power of the current. He points out that in accordance with the generally accepted theory of Grotthüs and Clausius, the molecular equilibrium of a mass through which an electrolytic current is passing is profoundly disturbed, and he advances the theory that the molecular changes in an imperfectly organised inflammatory deposit may materially favour its absorption by the neighbouring capillaries and lymphatics, while the more highly vitalised and healthy tissues are not affected.

13. Gynæcological cases treated by electricity in Professor Simpson's clinique.

Dr. Fraser Wright (*Edin. Med. Journ.*, December, 1890) gives an account of the use of the constant current in twenty-three cases, which are reported with great care. Eight of the cases were fibroids, with hæmorrhage as the main symptom ; and in seven of these the bleeding was arrested, and the improvement maintained for at least a year after treatment. The only case which did not improve was one in which there was also ovarian disease, which necessitated removal of the appendages. Four cases showed pressure symptoms, especially in connection with the bladder functions, and all of these showed an apparently permanent improvement. The remaining cases of fibroids had pain as the main symptom, and here there was no improvement either in the symptoms or the physical condition.

Of the sixteen fibroids treated in no case was the tumour entirely removed ; but in eleven there was a diminution in size, which in most cases was slight, in one, however, very marked ; five were entirely unaffected, and whilst in two of these five the symptoms were permanently relieved, in the other three there was no relief.

The length of time before improvement set in varied greatly ; in some it was apparent after a few applications, in others not until some months after cessation of treatment. Obstinate cellulitic deposits were removed by the current, but it appeared to have little or no effect on peritonitic adhesions. In one case of subinvolution pain was relieved, but no effect was produced on the size of the uterus ; and one case of pathological ante flexion

with endometritis was much improved symptomatically by vaginal applications, but unaltered physically.

All patients, whether the pelvic condition was improved or not, felt much better in their general health after a few applications.

Dr. Fraser Wright points out that the constant current ranks as a hæmostatic for bleeding fibroids along with ergot, but that it will benefit some cases for which medicinal treatment will do nothing, and that there will always be cases in which electricity is of no use, and where surgical interference will be required. He maintains, however, that in cases of fibroids giving rise to pressure symptoms, by blocking up the pelvis, nothing can be compared with the electrical treatment. The author concludes his paper with some valuable practical details as to the mode of procedure, and the method of avoiding and combatting the slight risks of the treatment.

14. Recent experience with electricity in gynecology.

In discussing the question of apparatus, Dr. P. F. Mundé (*Amer. Journ. of Obstetrics*, June, 1890) maintains that the galvanometer is of little service in determining how strong a current should be used, and that the sensations of the patient are the only indications of the proper strength of current; the real therapeutical limit of the current is a decided sensation of pain complained of by the patient. He considers that the diseases benefited by the faradic current are deficient development of the uterus and ovaries, amenorrhœa, subinvolution of the uterus and menorrhagia, submucous uterine fibroids. Here, he places one pole in the uterus, the other alternately over the ovaries and sacral region, and gives two or three sittings a week of 20 or 30 minutes for three to six months. The conditions which he believes are improved by the galvanic current are hyperplasia uteri, chronic oöphoritis and pachysalpingitis, chronic pelvic cellulitis and peritonitis; pelvic neuralgia, local and reflex; obstructive neuralgic dysmenorrhœa, and uterine fibroids. The proportion of fibroids which require electrical treatment is very small in Dr. Mundé's opinion, as out of 121 recent cases he has only submitted eight to that treatment, four interstitial tumours to vaginal galvanopuncture (with cure in each case), and four subperitoneal tumours to intra-uterine galvanism with relief of symptoms.

15. Observations on electrotherapy in gynecology.

Nagel (*Zeitschr. für Geb. und Gynäk.*, 1890) believes that in myoma the constant current benefits by easing the pain of the pelvic peritonitis, by arresting the bleeding, and also by influencing the activity of the bowel. As a whole, he believes that its good results are not above those attainable by other means.

16. On total extirpation of the uterus by the vagina.

John Williams (*Lancet*, Aug., 1890). This paper was delivered as an address opening the discussion on the subject at the Congress at Berlin, is devoted to cancer of the uterus, and is rather meant to serve as an introduction to debate than as an authoritative exposition. Dr. Williams points out that all cases are unsuitable for operation where the disease cannot be entirely removed, or where neighbouring organs are invaded. In cancer of the body of the uterus, the volume of the organ gives an important indication: where the fundus does not rise above the pelvic brim, the organ can be removed by the vagina, but by the time that the fundus has reached the umbilicus vaginal extirpation has ceased to be possible. In regard to cancer of the cervix and of the vaginal portion, opinions at present differ widely, and Dr. Williams maintains that we cannot as yet determine definitely in what cases total extirpation should be performed. Knowledge is to be sought in two directions: first, by anatomical research as to the starting-point of cancer, and the influence which this starting-point exerts on the after-course of the disease; these are to be inquired into, both in cases where there has been no surgical interference, and also where supravaginal amputation of the cervix has been resorted to. In the second place, we are to seek further light by clinical inquiry as to the comparative frequency and rapidity of recurrence after total extirpation and supravaginal amputation, and as to the comparative danger of the two procedures, regarding which the author does not think we are as yet entitled to draw definite conclusions. He further points out the great difficulty of making out whether the disease has spread beyond the uterus in early cases, and insists upon the most careful examination being made before operative interference is determined upon.

The paper by Schauta, and the discussion following, give the German view of this question.

17. Indications for total extirpation of the uterus through the vagina.

Schauta (*Arch. für Gynäk.*, Bd. xxxix., Hft. 1) considers the indications as follows:—

1. *The chief indication for vaginal total extirpation is, and will be, carcinoma uteri.*—Schröder formerly advocated supravaginal excision in canceroid of the portio, reserving total extirpation for cancer of the cervix and body. Now, many advocate total extirpation even in limited affections of the vaginal portion. Thus, he says:—

2. *As the lower limit for total extirpation in carcinoma, we*

are to take every case of uterine cancer—of portio, cervix, or corpus—so soon as the new formation is diagnosed.

3. *Partial amputations are to be condemned in cases prospectively for the radical operation.*—Much more difficult is it to settle the upper limit of total extirpation, i.e., the cases where one should not operate.

4. *The upper limit of the indications to total extirpation is every degree of spread to deep tissues.*

5. *Superficial spread does not contra-indicate operation.*

6. *To settle whether a parametric infiltration is malignant or inflammatory, examination by the rectum and under anaesthesia, aided by curetting, is of great value.*

7. *Apart from carcinoma, certain cases of prolapsus uteri, myoma, and recurrent glandular endometritis may be considered as indications for total extirpation.*

Schauta remarks on the tendency of some cases of innocent glandular endometritis to take on a malignant character afterwards.

In sixty-five cases Schauta has had a mortality of 7·6 per cent.

As to the ultimate results of his cases, if two years is to be taken as the time one may consider a case safe from return, he has had 47·3 per cent. of cure. He doubts, however, if all these will prove permanent cures. In the discussion Professor Olshausen recommended the vaginal operation strongly. In forty cases of the last three years 47·5 per cent. were free from return two years after operation. From 1880 to 1887, in fifty-six cases operated on, six were free from return; a much less favourable result, probably due to too extended indications.

Landau (Berlin) recommended forcipressure for arrest of hæmorrhage. In thirty-five cases he had lost only three: one from diabetic coma, one from sepsis, and one from ileus.

Salatzky (Moscow) gave his experience, based on 238 cases in Russia, of which sixty-five were operated on by himself. In 238 cases 12·6 per cent. died; there was return in forty-three, and one case was free seven years after. He recommended splitting the uterus, according to P. Müller, and Kraske's procedure (sacral resection).

Martin (Berlin) would not restrict vaginal extirpation of the uterus to carcinoma alone, but extend it to where its presence interfered with patient's life or power of work. Method of operation was indifferent, but he recommended closure of the vaginal wound, and catgut as ligature.

Kaltenbach thought sacral resection gave better access to the field of operation, but not any greater removal of disease. In eighty cases he had lost only two where he closed the peritoneum.

Ponsi (Paris) spoke in favour of Schauta's conclusions, and against the exclusive use of *forçi-pressure*.

Czerny (Heidelberg) spoke of the change in opinion as to the value of total extirpation.

Péan (Paris) recommended the following procedure. In epithelial cancer of the collum he removed the tumour in pieces before drawing it down, and thus avoided infecting the peritoneum with *débris*. In carcinoma of the body he recommended cutting away of the neck, and then removal of the body by *morcelement*. He did this also in fibroids, using forceps for the arrest of hæmorrhage. In sixty cases of vaginal hysterectomy thus performed he had lost no cases, and in 200 for myoma only four.

An account of Kraske's sacral method of treating rectal carcinoma will be found in Langenbeck's *Arch.*, Bd. 33, also in a paper by Kraske in the *Berliner klin. Woch.*, 1887, S. 899. Winckel, in the fourth edition of his "*Manual of Diseases of Women*," gives an account of Hochenegg's proposal to use sacral resection in carcinoma uteri. In this method the coccyx is removed, and part of the left wing of the sacrum. It has been practised by Hegar in seven cases, and recommended by Wiedow in some cases of pelvic abscess. It affords limited access to cavity.

16. Four cases of vaginal hysterectomy.

Cullingworth (*Obstet. Trans.*, London, pt. ii, 1890). Four cases of total extirpation of the uterus per vaginam are related—two of columnar-celled carcinoma of the cervix, and two of squamous-celled carcinoma of the portio vaginalis. In three of the cases the patients recovered from the operation; one showed recurrence in eight months. The disease had extended into the body of the uterus in both the cases of cervical carcinoma, and the author expresses a doubt whether the tissues above the internal os are respected as frequently as is alleged. Museum specimens were shown where the corpus uteri was more or less invaded. In the fatal case the patient had a parovarian cyst, situated behind the uterus; this was removed by abdominal section on the same day that the vaginal hysterectomy was performed. Death occurred on the third day, apparently from intestinal paralysis.

Dr. Cullingworth goes on to discuss the mortality following this operation, and points out how very greatly this has decreased since Dr. W. Duncan in 1885 showed that the mortality up to that date was 28·6 per cent., while the recent (1889) statistics of Münchmeyer, Kalténbach, and Péan give, in cancer cases, a mortality of 7·3 per cent.; while if the German statistics alone be taken, the mortality is only 4·28 per cent. As to recurrence,

most of these cases have been operated on too recently for certainty on this point to be obtained ; but in 31 of Leopold's cases operated on more than three years ago, there had been no recurrence in 17, or 54 per cent. ; of cases operated on more than two years ago, 27, or 64·5 per cent., remained well.

The discussion which followed Dr. Cullingworth's paper turned largely on questions of pathology, and especially as to the direction in which cancer of the cervix spreads. Dr. W. Duncan regarded foreign statistics as practically valueless, inasmuch as total extirpation was performed for other conditions than cancer, such as prolapsus uteri, and he still preferred supravaginal amputation. Dr. W. J. Sinclair defended German statistics, and expressed a strong preference for total extirpation, especially in cases of cancer of the body, and of the portio vaginalis, while in cancer of the cervix the difficulty of removing the whole of the affected tissues was much greater.

Dr. Cullingworth, in replying, showed that there was no ground to doubt the German statistics, and maintained that if it was right in cancer elsewhere in the body to remove the diseased tissues as freely as possible, the same principle ought to be applied to the uterus, and that the value of an operation was not to be measured merely by the chance of a permanent cure, but also by the amount of comfort which it gave the patient. He expressed the opinion also that it might be found that the partial operation might be sufficient in most cases of squamous-celled carcinoma, while total extirpation might be the only safe method of dealing with glandular carcinoma of the cervix.

19. The limits of vaginal hysterectomy for cancer of the uterus.

Dr. H. C. Coe (*Amer. Journ. of Obstetrics*, June, 1890) condemns this operation in all cases except the most favourable cases of malignant disease of the corporeal endometrium. His own experience of the operation extends to 19 cases, of which five were corporeal, 14 cervical (12 of the cases were operated on by Dr. Hunter). The results are not encouraging :—Died from the operation, 6 ; recurrence within eighteen months, 1 ; within twelve months, 1 ; within seven months, 2 ; within six months, 1 ; within two months, 3 ; not heard from, 1 ; well at the end of ten months, 1 ; too soon to determine, 3.

20. A new proceeding—the operative exposure of the pelvic organs through the perineum.

Zuckerkandl (*Wiener Med. Presse*, Nos. 7 and 12, 1889) describes here a means of reaching the uterus and annexa through the perineum. In the male, the prostate, bladder, and rectum

can also be operated on through this tract, but we consider at present only its applicability to the female. In total extirpation of the uterus the method as described on the cadaver is as follows:—The body is placed in the lithotomy posture, and a curved transverse incision, convexity forwards, made between anus and vaginal entrance. The skin, superficial fascia, and muscular fibres of sphincter ani externus passing forward are then divided. The vagina and rectum are next separated, and a wide gaping wound is thus made. The peritoneum of Douglas's space is now exposed at the apex, the rectum lies behind, the vagina in front, while the side walls are formed by the fat of ischio-rectal fossa with the cut ends of the levator ani. Douglas's space can next be opened, and the uterus seized and brought down with its annexa into the wound, and the uterus removed. (*Vide Frommel's Paper.*)

21. Perineotomy for tumours of the pelvic connective tissue.

Sänger (*Verh. der deutschen Gesellschaft für Gynäk.*, 1890) describes firstly a case of dermoid of the pelvic connective tissue he removed through the perineum. The patient had several difficult labours owing to the presence of a dermoid cyst about the size of a child's head in the right half of the pelvis, and displacing markedly the uterus, vagina, and rectum. When tapped a dark fluid was obtained with fatty detritus and cholesterin. Four months afterwards it had refilled, and was then removed as follows:—An incision 7 to 8 c.m. in length was made from the inner edge of the right labium majus, passing backwards and slightly obliquely to a point 2 c.m. behind the anus. The ischio-rectal fossa was thus opened, the levator ani and pelvic fascia cut, and the tumour exposed. It was then shelled out with some difficulty, and the cavity stuffed with gauze. The peritoneal cavity was not opened. The wound healed in four weeks. Of such dermoids of the pelvic connective tissue only ten have been recorded, and they are more analogous to orbital than ovarian dermoids.

For perineotomy the following cases are suitable:—

1. Tumours of the ischio-rectal fossa and cavum subperitoneale pelvis—*e.g.*, dermoids, echinococci, etc.: connective tissue tumours, hæmatoma and abscess; foreign bodies.

2. Tumours of the retro-cervical space, cysts, myoma of the cervix.

3. Intraligamentary and subperitoneal cysts of the ovary and parovarium developing into the cavum subperitoneale pelvis.

4. Blood tumours due to atresia (*hæmatokolpos*, *hæmatometra lateralis*).

5 Periosteal and bony tumours of the true pelvis.

6. Intraperitoneal tumours, such as retro-uterine hæmatocele, pelvi-peritonitic abscess, tumours of tubes and ovaries fixed in Douglas's space.

7. Atresia ani vaginalis, high recto-vaginal fistulæ, perineal hernia.

Sänger finally discusses Zuckerkandl's proposal, and gives anatomical details as to the incision. In the discussion Hegar spoke favourably of the method. In extirpation of the cancerous uterus, he was struck with this, that one had vessels, etc., under his eyes as it were, and had not to depend on the touch as in vaginal extirpation.

22. Total extirpation of the uterus from the perineum.

Frommel (*Verh. der deutschen Gesellschaft für Gynäk.*, 1890) describes here a case of total extirpation of the uterus where he operated by a modification of a method described, but not practised as yet, by Zuckerkandl (*Wiener Med. Presse*, 1889, No. 7). Frommel varied this by separating the cervix from the bladder vaginally, plugging this with iodoform gauze, and then operating from the perineum. In this case Frommel found that space could be obtained between vagina and rectum sufficient to pass the fist into. One special advantage was the breadth of the opening in Douglas's pouch. This can be closed with continuous catgut suture, and the space between rectum and vagina plugged with gauze. Frommel's case recovered well, but he adds that the operation is more difficult than vaginal hysterectomy, and the time of healing more protracted.

23. The treatment of posterior displacements of the uterus.

Dr. H. J. Boldt (*Amer. Journ. of Obstetrics*, June, 1890) starts with the proposition that displacements, as such, produce none but mechanical symptoms; pains, reflex phenomena, etc., are due to the associated and complicating pathological conditions. All displacements amenable to treatment with pessaries should be so treated, and many cases of fixation may be relieved by Schultze's or Brandt's method of manual manipulation; but Dr. Boldt reports ten cases in which he has performed ventral suspension or fixation with good results as to the position of the uterus and relief of symptoms. The operation of suspension is performed as follows:—The abdomen is opened, the adhesions are broken up, and the ligature used if necessary; a silkworm-gut suture is passed first through the abdominal parietes at one side of the wound, then beneath the

uterine serosa at the fundus for about an inch; then the opposite parietal wall is pierced, the sutures to close the wound are inserted, the amount of hæmorrhage into the cul-de-sac is ascertained, and one must see that there is no intestine in front of the uterus. The suspending suture is then tied, and the wound closed. A pessary is inserted at first to take the strain off the suture, which is cut after one week, and removed after a fortnight. This operation is not applicable to cases where there is an atrophied flexion angle, or where the uterine supports are too greatly atrophied or relaxed. In some cases Dr. Boldt considers it justifiable to denude the uterine serosa for about two square centimètres, and to make a fixation with two or three sutures. This, however, should only be done in cases of posterior displacement where the appendages have been removed, or where there is no likelihood of future impregnation.

24. A contribution to tubal disease.

Skutsch (*Verh. der deutschen Gesellschaft für Gynäk.*, 1890) records a case of conservative treatment in tubal disease, on the lines of those already given by Schröder, Martin, and others. The case is as follows:—Patient was 28 years of age, sterile, and had severe pain in the lower part of the body, and profuse menstruation. On examination, the vagina was found of medium capacity, uterus anteflexed, of normal size; no stenosis; left tube and ovary painful to touch, their mobility limited; right ovary and tube the same. Under an anæsthetic the following additional points were made out. The left ovary is of normal size; the tube can be followed from its uterine end, increases in thickness, and ends in a smooth, tense swelling. On the right side the condition is the same. The diagnosis was therefore made as follows:—closure of the abdominal end of both tubes; distension with fluid, evidently serous. For this hydrosalpinx, salpingotomy rather than salpingectomy was indicated. On abdominal section and aspiration this condition was found, and therefore the tubes were incised, and the edges of the incision stitched so as to leave a communication with the peritoneum. Result good and improvement as to menstruation. This operation may be termed Salpingostomy.

25. Etiology of parametritis.

Bumm gives here the result of a research as to the origin of parametritis, which is of interest as showing the value of anti-septics in the prevention of inflammatory affections. Usually two forms of parametritis have been distinguished, a septic and non-septic. The former agrees with the suppurating condition, the latter with that which resolves without the formation of pus. In the former cases pyogenic cocci are usually found. In five cases

of parametritis where no suppuration was going on, and in which ultimately no pus formed, Bumm aspirated serum with the following results:—The first two cases were gonorrhœal, and no cocci were found; but this was in all probability due to the fact that the disease had gone on for three weeks. The third case was a puerperal parametritis; in it streptococci were formed which could be cultivated. The fourth case was that of a young girl, seventeen years of age, where the cause was a wetting and chill on the first day of menstruation. Streptococci were found in the aspirated serum. In the fifth case the parametritis came on after an iodine injection into the uterus for hæmorrhage. Here chain cocci were found.

From experiments on the parametrium of the rabbit, Bumm came to the conclusions:—

(1) That neither mechanical nor chemical means, provided asepsis was perfect, brought on inflammatory swellings. There might be blood effusion or peritoneal inflammation with adhesion, but no parametritis.

(2) While mechanical or chemical means failed, infection with known cocci of pus succeeded in producing inflammatory tumours in the parametrium. Bumm thus holds that a simple traumatic non-septic parametritis does not exist. Where we have an inflammatory condition in the pelvic connective tissue, an infective process has spread from some part of the genital tract along the lymphatic tract into the parametrium. Small cell proliferation is then set up, and we may get the cocci disposed of by the organism without the further local result of suppuration.

26. The medical treatment of dysmenorrhœa.

E. W. Mitchell (*American Journal of Obstetrics*, March, 1890).

Dr. Mitchell points out that dysmenorrhœa is often associated with periuterine diseases requiring surgical interference, and that in these cases the various pathological attendants must first be removed, but that there remains a large catalogue of cases of dysmenorrhœa, especially in young girls, where general treatment ought to precede local interference, and is often attended with good results.

For immediate relief opiates are most valuable temporarily, and, of course, most harmful ultimately. The bromides, with belladonna or hyoscyamus, are useful in plethoric women with scanty flow, and cannabis indica in cases with free flow; while antipyrin gives temporary relief in a great majority of cases.

In order to effect cure, general hygiene is most important—careful diet, exercise, healthy mental and moral surroundings, and, especially in young girls, an avoidance of overstrain of the

nervous system. Cases where there is neurasthenia, or where the nutrition is poor, are often best treated at first by rest, with massage and electricity, followed by plenty of out-door exercise. In other cases drugs are important adjuncts, iron in women who are anæmic and have a scanty flow, arsenic where the flow is freer, while apiol and binocide of manganese have given good results in Dr. Mitchell's hands in several cases.

27. Kraurosis vulvæ.

Orthmann (*Zeitschr. für Geb.*, Bd. 19, Hft. 2) gives an account of the condition, with some remarks on treatment by operations. As to the history of the affection, it was described by Breisky in 1885, and considered by him to be a form of skin atrophy of the vulva. This causes dryness of the parts, with a shininess and rigidity leading to stenosis. On microscopic examination, atrophic changes were found in the papillæ and a sclerosis of the rete mucosum, so that the epidermis was thickened and lay almost immediately over the papillæ. Sebaceous glands were absent, and only traces of sweat glands were to be seen. Small-celled infiltration of the papillæ and deeper layer of the corium was found. Breisky could find no explanation of the cause of this condition. Various opinions by Fleischmann, Janovsky, and others, are discussed, but we pass on to Orthmann's case.

CASE 2.—Patient complains of itching and burning locally. The labia majora were in part covered with separated and dry epithelium; at other parts reddened with epithelium denuded or ulcerated. Labia minora insignificant, and vaginal entrance stenosed. This condition reached from clitoris to perineum. Cicatrices were present in the vagina.

Treatment.—Vaginal cicatrices freed, and on each side of the vulvar cleft strips 4 c.m. wide were removed from the vulva, the excision beginning in front at the clitoris and ending at the lower end of the vulva; a bridge of tissue, however, 3 c.m. broad, being left there. Catgut sutures were used, and the parts healed well, with an ultimate good result.

[Cases of pruritus vulvæ should always be carefully examined to see if this condition does not exist.]

28. Ichthyol in diseases of women.

Dr. H. W. Freund (*Berl. klin. Woch.*, No. 11, 1890) here warmly recommends ichthyol in the various forms of gynecological diseases inflammatory in their origin. He urges its use specially in chronic parametritis, chronic and subacute perimetritis with exudation or adhesions, cicatrices in the vagina, chronic metritis, inflammatory conditions of the ovaries and tubes, cervical erosions, pruritus vulvæ.

Ichthyol is to be given internally in pill form (2-3 gr.) thrice daily. Externally it may be used in various forms: (1) as vaginal tampon of cotton-wool soaked in ichthyol glycerine (1 in 20); (2) as an ointment for friction with equal parts of lanoline; (3) as a soap to be smeared on the abdominal walls (1 of ichthyol to 10 of *sapo viridis*); (4) as suppository (in cacao). In erosions the ichthyol may be employed alone, and in pruritus vulvæ the ointment or watery solution (10 per cent.) is to be used. The internal use of ichthyol has a good effect both on the appetite and the regulation of the bowels. Freund has had excellent results from this treatment—absorption of vaginal cicatrices in a few days, and he mentions especially an exudation in Douglas's pouch, with some temperature disturbances, which cleared up after sixteen days' treatment.

He points out that in cases where pain is marked it is better to begin with chloral hydrate tampons in glycerine (2 to 5 per cent.) first, and then, when pain has somewhat abated, to go on with ichthyol. Massage may be used in addition. To cover the odour of the ichthyol, cumarin may be employed.

29. The treatment of enuresis by dilatation of the bladder sphincter musculature.

Sänger (*Arch. für Gynäk.*, Bd. 38, Heft 2, s. 324) describes a method of treating incontinence of urine in women and girls as follows. The urethral orifice is disinfected and a clean metal catheter passed into the bladder for about two to three inches. The orifice of the catheter is closed with the finger of one hand, while with the finger (index or middle) of the other, at the level of the urethral orifice, pressure is exercised on the catheter in a backward, and backward and outward direction. This is done about twelve times in as many sittings. No pain is caused by it, but cocaine may be applied if necessary. The enuresis he believes to be due to a paresis of the bladder musculature, and the manipulations he believes strengthen it.

30. Contributions to the surgery of the female urinary organs.

Heyder (*Arch. für Gynäk.*, *ibid.*) gives an account of a case of renal tumour and one of urethrocele in Sängers's clinique.

CASE 1.—*Fibro-sarcoma of the fibrous capsule of the kidney. Laparo-nephrectomy. Cure.*—Few such cases have been recorded, and as yet none has been diagnosed prior to operation. They are usually considered ovarian cysts. Tumours of the hilum of the kidney usually arise either from the fibrous or adipose capsule: the former may be fibroma, sarcoma, or fibro-sarcoma; the latter, lipoma or mixed forms of this.

In a table of 20 cases, 8 arose from the fibrous capsule, the rest from the fatty capsule. The case recorded is as follows:—The patient was 37 years of age, with no special history. Abdomen equally enlarged, the greatest circumference at navel being 40 inches; distance from navel to pubis, 8 inches. Note tympanitic in epigastrium, both hypochondria and right lumbar. It could not be determined whether the tumour was an ovarian with a long pedicle or was retroperitoneal in origin. On operation, the tumour was found covered with movable peritoneum and some dilated veins. The incision was therefore enlarged, and enucleation performed. At the root of the tumour the left kidney was found, and removed with it. Careful toilette; glass tube in Douglas's pouch; and retroperitoneal cavity stuffed with gauze, the opening in this cavity being of course united to the parietal peritoneum. The patient suffered from shock, but made a good recovery. A table of the varying amounts of urine passed after the operation is given, and the cases recorded of this nature are discussed. In 20 cases there have been 5 deaths.

CASE 2.—This was one of large urethrocele, where anterior colporrhaphy was performed, care being taken not to perforate the urethrocele during the operation.

MIDWIFERY.

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1. The physiology of pregnancy.

1. Its *duration*: a matter in the human species not so easily settled as in animals, in whom the date of impregnation is exactly known. Issmer (*Arch. für Gyn.*, Band xxxv.), in a long paper on the duration of pregnancy, brings out by an analysis of 464 cases the following interesting points:—That the cases of conception in the first half of the intermenstrual period were to those in the second half as 72 to 27; and that pregnancies dating from the first half of the intermenstrual period were shorter in duration than those dating from the second half. The author thinks that when conception takes place in the first half, the ovum fertilised is that which has been discharged at or near the last menstruation; while in those fertilised in the second half, the ovum is that which escapes at or near the next menstrual period. The average duration of pregnancy Issmer finds to be 278 days from the last menstruation, 268 days from conception; the maximum, 304 days.

The following is a laborious investigation into

2. *The attitude of pregnancy*.—Dr. Anna Kuhnów (*Arch. für Gyn.*, Band xxxv.) has, by the aid of a machine devised by herself to take tracings of the different outlines of the body, sought to find out what actual change takes place in the attitude while standing of a pregnant woman. The statements of former investigators are not harmonious. Dr. Kuhnów's results are these:—1. The position of the whole body is altered. There are two types—in the majority the whole body, in about 20 per cent. the trunk only—is inclined backwards. 2. The shape of the spine is changed; the neck is more erect, the dorsal curve is greater and more prominent, the lumbar curve is straighter and more upright; the lumbar lordosis is apparently greater, but is in reality flatter. The pelvic inclination in the later months of pregnancy is diminished or unaltered. The hip-joints in the majority of cases are carried backwards. The lower part of

the sternum is carried forwards, and thus the antero-posterior measurement of the chest diminished.

The next contribution I come to is of more directly practical value, bearing on *the significance of the presence of sugar in the urine during pregnancy*:—

3. Ney (*Arch. für Gyn.*, Band xxxv.) recapitulates the different researches that have been made, with somewhat discrepant results, into the frequency of sugar in the urine during pregnancy and lying-in. He has himself examined the urine of 148 lying-in and 24 pregnant women, with most careful precautions to avoid error. He found sugar present before labour in only 16 per cent. In no case was glycosuria, not present before labour, produced by labour. (In rabbits the production of glycosuria by labour is frequent.) In pregnancy the urine only contained sugar in women with large, well-developed breasts. Sugar was present in the urine of 78 per cent. of lying-in women. There was no relation between febrile symptoms and sugar in the urine. But all causes which prevented suckling, such as depressed or sore nipples, were immediately followed by the appearance of sugar in the urine; and the sugar in the urine diminished and disappeared when the cause which prevented suckling was removed. After abortion or premature labour, sugar is present in the urine or not, according to whether the pregnancy is advanced enough or not for the breasts to have begun to secrete. If the breasts are secreting, and the patient does not suckle, sugar appears in the urine. Glycosuria is not invariably present in the women with largest breasts; but it is always present in women whose breasts are tense and full—an evidence that milk is retained in the gland. Dr. Ney draws the practical conclusion that glycosuria in the puerperal woman is physiological, since it occurs in the best-developed and healthiest subjects; and that a nursing woman, whose urine contains sugar, if there be no morbid condition present to account for it, will make a good wet-nurse. The amount of sugar in the urine was from .8 to 1 per cent.; as much as 2 per cent. was only occasionally met with. It was largest in those who did not suckle. The children of women who had sugar in the urine thrived better than those whose mothers had no glycosuria. Seventeen per cent. of the former class lost weight during the first fortnight, while 65 per cent. of the others did so; and children of the former class who increased in weight did so to a greater degree than those of the latter. The more the glycosuria, and the longer it lasts, the better the wet-nurse. The better the woman is fed and taken care of, the longer the sugar continues to appear in the urine.

Dr. Ney regards the glycosuria as simply an effect of mechanical conditions. The pressure in the milk-ducts is higher than in the blood-vessels, and so osmosis of sugar takes place through the vessel walls.

We have in the next paper referred to an audacious physiological speculation as to *blood production in pregnancy* :—

4. Mochnatscheff (*Arch. für Gyn.*, Band xxxvi.), after enumerating the blood corpuscles in twelve pregnant women, comes to the following conclusions :—(1) The blood of a pregnant woman contains more white corpuscles than the blood of one who is not pregnant. (2) That blood taken from the vaginal portion while the uterus is relaxed contains fewer white corpuscles than that taken from the hand of the same patient. (3) That the reverse is the case when the uterus contracts. Dr. Mochnatscheff was led to this investigation by considering the probability that white corpuscles might be stored up in the uterus as in the spleen, and possibly are of especial use in nourishing the fœtus; and that in the endometrium, which he looks upon as made up of lymphoid tissue, it is possible that white blood corpuscles may be produced. His researches, he thinks, make both of these hypotheses plausible.

The very difficult question of *the anatomy of the placenta* is far from being yet settled, and the paper next quoted may interest a few :—

5. Bumm (*Arch. für Gyn.*, Band xxxvii.) describes the result of examination of placenta in order to determine the ultimate distribution of the utero-placental vessels. His observations lead him to accept the Hunterian idea of the placenta, and not that of Ercolani and Hicks. He finds that the uterine arteries open into the intervillal spaces, and that the uterine veins return the blood from these spaces. He quotes observations made by other investigators which point to the same conclusion.

A *new sign of pregnancy* not dependent upon the life of the fœtus would be very welcome. The following paper analyses one which has been proposed :—

6. Segur (*Amer. Journ. of Obst.*, May, 1890), writing on the diagnosis of pregnancy, records an investigation into the value of a sign of pregnancy introduced by Jorissenne in 1882. According to Graves, in cardiac hypertrophy the rate of radial pulsation remains constant in all positions of the body. Now, as in pregnancy there is some hypertrophy of the heart, Jorissenne reasoned that in pregnancy there should be no variation, whether the body be upright or horizontal—a simple, harmless, and easily applied test, if reliable. Dr. Segur applied it in 46 cases. In 14 there was

no variation between the rate in the vertical and horizontal postures greater than 5 per cent. Three of these proved not to be pregnant. In the rest—32 cases—there was a difference of more than five beats, and they all were pretty certainly pregnant. The test, therefore, only holds good of about one-quarter of pregnant women; and the sign occurs in patients also who are not pregnant.

2. The pathology of pregnancy.

I take first some contributions bearing upon the association of pregnancy with other diseases existing with it, but not directly affecting the genital organs:—

1. *The treatment of pregnancy associated with phthisis.*—Dr. William Duncan (*Trans. Obst. Soc.*, London, 1890) related a case in which he terminated pregnancy on account of phthisis. The uterus was emptied by the *accouchement forcé* in twenty-five minutes. The paper elicited an animated discussion, from which it appeared that there was great difference of opinion as to the effect of pregnancy upon phthisis, and no certain knowledge on the subject; but the view of most speakers was that phthisis formed no sufficient reason for interfering with the course of pregnancy. The mode of delivery adopted was not approved by any speaker

2. *The effect of heart disease on pregnancy, and the management of such cases.*—Dr. Montagu Handfield-Jones (*Brit. Med. Journ.*, 1890, vol. i., p. 596) relates three cases in which patients with cardiac disease became pregnant, symptoms of cardiac failure supervened, and the pregnancy ended in abortion; while in subsequent pregnancies in the same patients, treatment directed to the avoidance of cardiac failure was successful in securing the delivery of a healthy child at term. He draws the inference that cardiac disease, without adequate compensatory hypertrophy, may explain some cases of the supposed "habit of aborting."

Dr. G. Owen C. Mackness (*Edin. Med. Journ.*, Aug., 1890) reports a case of labour with aortic and mitral stenosis and incompetence. He points out that the great danger in heart disease during pregnancy and labour is due to venous engorgement, and that this engorgement occurs in all heart lesions. The use of cardiac tonics, he thinks, should be avoided as long as possible, and they should never be used until there are evident signs of failure of compensation. Before this, careful diet, moderate exercise, and the use of iron and arsenic, are all that is required. To relieve the heart, he advocates strophanthus, bleeding, and chloroform during labour. Keller and Robertson (*ibid.*, p. 133) report a case of death from heart disease during the second stage of labour, which a partial

post-mortem examination showed to be due to fatty degeneration of the heart.

3. *The mutual relations of diabetes and pregnancy.*—Gaudard (*Thèse de Paris*, 1889; summarised in *Cent. für Gyn.*, 1890, S. 434) says that a slight form of diabetes may come on at the beginning of pregnancy, and diminish again after delivery. There is a severe form which continues long after delivery (on the average about twenty months); and there is a third, still more grave, form, which leads quickly to death. Abortion is a consequence of diabetes in about a third of the cases. The occurrence of pregnancy in a diabetic patient brings with it great risk; the early months go on smoothly, but towards the fifth month the condition gets worse; more than half the cases die soon after delivery from pulmonary phthisis or diabetic coma. Out of 100 children 41 died. Suckling further aggravates the condition. Therefore diabetic mothers ought not to nurse their children.

4. *The effects of syphilitic infection during pregnancy.*—Steffeck (*Zeit. für Geb. und Gyn.*, Bd. xviii.) relates two cases in which the clinical history was well ascertained, and a careful examination of the placenta made. They point to the following conclusions:—(1) That syphilis communicated to a healthy mother in the middle of pregnancy may affect the child. (2) That disease of the placenta does not depend upon the date of infection, but that in any case of foetal syphilis all parts of the placenta may be diseased. In Steffeck's cases he found no disease of the decidua. The villi were pressed close together, the intervillal spaces being reduced to a minimum; the epithelium of the villi was partly destroyed, and the foetal vessels were either quite obliterated or their lumen narrowed. These conditions Steffeck thinks sufficiently explain the death of the foetus. He does not think that these changes (or that there are any changes in the placenta which) are characteristic enough to enable us to say that a given abortion or premature delivery was or was not produced by syphilis.

5. *The complication of pregnancy with cancer of the rectum.*—Löhle (*Zeit. für Geb. und Gyn.*, Bd. xviii.) discusses cancer of the rectum as an indication for the induction of premature labour. He points out that there may be two reasons for the induction of labour in cancer of the rectum. One is that the cancerous mass offers a mechanical hindrance to delivery. The other is that the cancer grows fast during pregnancy; the great vascularity of the parts makes its removal during pregnancy exceptionally dangerous; and if cancer, sufficiently limited to be capable of removal in a woman who is yet some distance from

full term, be left until the pregnancy have reached its natural termination, it may by that time have so extended that its removal will be impossible.

Coming now to disease more directly dependent upon the pregnancy, I quote some papers on the—

6. *Excessive vomiting of pregnancy*, a condition which is rare, but about which we have very much to learn. The first paper puts what little we do know in a most compact, orderly, and easily-remembered way; the second opens up some of the difficulties in its pathology; while the third merely advocates a new remedy.

Auvard (*Archives de Tocologie*, Oct., 1889) says that the idea of expecting one single remedy to meet all cases of intractable vomiting of pregnancy is a quite erroneous conception. Experience shows that cures have been effected in the most diverse ways, without any of these methods being usually, not to say constantly, successful. It must be so, for intractable vomiting is due to various causes, and three organs or systems are concurrently engaged in its production. These are (1) the uterus, the seat of pregnancy, and at the same time a source of special excitation for other organs; (2) the nervous system, spinal and ganglionic, which by its reflex function transmits to a distance this excitation; (3) the stomach, the seat and agent of the principal symptoms, which responds in an excessive manner to the uterine stimulus. To combat the excessive vomiting of pregnancy with assured and not doubtful success, it is indispensable to resort to a complex treatment simultaneously addressed to each of these three sources of the malady. There are three fundamental indications to realise:—1. To soothe morbid excitation of the uterus by remedying the various pathological states which may produce it. With this object, belladonna, cocaine, morphia, vaginal injections, and topical applications, recumbency with the hips raised, the elevation of the uterus with a pessary, cauterisations, and even artificial dilatation of the cervix, are so many resources which, according to the case, may be applied with good effect. 2. To diminish the activity or suppress the exaggeration of reflex action, a result which may be obtained by the use of chloral, bromides, the refrigeration of the spine, either by the ice-bag or by the ether spray, or by moral influences, such as the calming of fear or chagrin, the descending galvanic current, the inhalation of oxygen. 3. To combat the intolerance of the stomach by treating the disorder of which it may be the seat, and calming its irritability. This is to be done by strictly dieting the patient, suppressing solid food, giving

beef-tea, chicken-broth, &c. (to prevent the patient getting a distaste for these things, they should be alternated, one given one day the other the next); alkaline waters, such as Vichy; ice; given in small quantities at a time. Acid drinks, wine, fruit, and the like, should generally be forbidden. Flying blisters or morphia may be applied to the skin of the epigastrium, or the ether spray. Laxatives or mild purgatives. The stomach should be spared work as much as possible. Innumerable drugs have been proposed for this condition, and they are sometimes useful; but the rational treatment is based on the principles here laid down, and treatment on any other lines will be only occasionally successful.

Flaischlen (*Zeit. für Geb. und Gyn.*, Bd. xx.) describes five cases of excessive vomiting of pregnancy, three of which ended fatally, and two were saved by the occurrence of abortion. He says that the time which was sufficient for the excessive vomiting to reduce the patient to a dangerous condition was very short—a few weeks only. The loss of strength was too rapid to be due simply to the lack of nutriment. The clinical facts pointed to a profound alteration of the whole nervous system leading to weakening of the heart. The best guide in prognosis is the pulse. Dr. Flaischlen urges that the cure is the induction of abortion, and the practitioner should be careful not to put off this till too late.

Gottschalk (*Berlin. klin. Wochen.*, 1889, No. 40) describes a case in which a woman aged twenty-six suffered from uncontrollable vomiting in the second month of her fourth pregnancy. Neither cocaine nor Copeman's treatment succeeded, and the sickness continued till abortion was induced. In the fifth pregnancy the vomiting returned, and was accompanied with hæmatemesis. A draught was prescribed containing menthol 1 part, rectified spirits 20 parts, and distilled water 150 parts, of which a table-spoonful was to be taken every hour. The vomiting ceased after the third dose, and pregnancy went to term without further trouble. A second case was successfully treated in the same manner.

7. *The presence of pregnancy with fibroids* leads, if the pregnancy persist, both to danger in labour and the lying-in, and also to increased difficulty and danger if surgical measures are taken for its removal. From the latter point of view the following record is encouraging:—

Boutier (*Annales de Gyn.*, Mars, 1890) relates a case in which at three months' pregnancy he removed a subperitoneal fibroid, having a pedicle thicker than the fist, and weighing nearly 5 lbs.

The remains of its serous capsule were brought together over the uterine wound left by its removal, and the abdomen closed. The patient did well, and the pregnancy went to full term. The author has found fifteen reported cases in which similar operations were done during pregnancy, with five deaths and ten cures. Of the ten recoveries, three patients aborted, and seven went to full term.

The danger of pregnancy with fibroids is illustrated by the following case.

Ribemont-Dessaignes (*Annales de Gyn.*, Avril, 1890) relates a case in which delivery was obstructed by a large fibroid nearly filling the pelvic brim. The breech presented. The "basiotribe" was applied to the breech. It was with this instrument seized and drawn down, and as the breech engaged in the pelvis, the fibroid rose. The fœtus, however, was decomposing, the discharges were extremely offensive before delivery was begun, and the patient died from septicæmia nineteen days after delivery.

The following paper on *operations during pregnancy* supports the line of practice followed by Routier.

Mr. Mayo Robson (*Brit. Med. Journ.*, Nov. 9, 1889) relates five cases, the only ones in which he has performed serious operations during pregnancy. They comprise (1) the removal of a fibroid, the size of a small cocoa-nut, from the anterior lip of the cervix, in the seventh month of pregnancy; (2) amputation of breast in third month of pregnancy; (3) removal of adherent multilocular ovarian cyst in tenth week of pregnancy; (4) operation for strangulated femoral hernia in third month of pregnancy; (5) ovariectomy after acute symptoms caused by rotation of tumour in second month of pregnancy. All the patients recovered without miscarriage, and went to full term. Mr. Robson remarks: "Hitherto it seems to have been a matter of chance whether the patient would or would not miscarry after an operation during pregnancy. May we not hope that by the use of antiseptics as well as anæsthetics, we may operate in such cases with a greater certainty of success?"

8. *Retroversion of the gravid uterus* is a condition often fraught with danger. The two following papers deal, the one with its natural history, the other with one of its effects. As the tendency is now rather to over- than under-estimate the importance of displacements of the non-gravid uterus, Dr. Martin's paper is especially useful, and perhaps marks the turn of the tide.

Martin (*Deutsche Med. Woch.*, No. 39, 1889) treats of the effect of backward deviations of the uterus on conception and

pregnancy. He has examined his notes of 121 cases of retroversion of the gravid uterus. He asks, (a) Is retro-deviation, especially its highest degree, retroflexion, actually a serious hindrance to the occurrence of pregnancy? (b) Is the risk which arises from pregnancy in a retroflexed uterus so considerable as earlier literature would lead us to think? He gives twenty-seven cases in which the displacement was supposed to have been congenital, because there was no history of the sudden coming on of any illness. Of these, most were pregnant when seen; and those who were not pregnant were either not married or were suffering from some disease, other than the displacement, which was sufficient to account for their sterility. He gives, further, ninety-four cases of retroflexion of the uterus in multiparæ; nine were under treatment for the displacement, and in them it was possible that pregnancy had taken place while the uterus was displaced backwards; while in eighty-five it was certain that pregnancy took place while the displacement was present. Of the 121 cases, in thirteen the case could not be watched to the end of pregnancy. In ninety-seven the pregnancy went to full term. In four cases abortion took place; but in two of these it was provoked by injudicious treatment. In seven premature labour took place after the uterus had risen out of the pelvis and the retro-deviation was no longer present. The cases that went to term were treated by keeping the bladder empty, and in almost all by manual reposition, generally in the dorsal position, sometimes in the lateral or knee-elbow position. After reposition a Hodge's ring was put in. When abortion threatened, the patient was kept in the lateral or semi-prone position for a week.

His conclusions are the following: (1) The majority of cases of pregnancy in a retro-deviated uterus do not come to the knowledge of the medical man, but are cured by spontaneous reposition without noteworthy troubles; (2) The complaints of patients are essentially those incident to difficulty in emptying the bladder; the diagnosis in the majority of cases in which reduction does not take place is very easy; (3) If the pregnant but backward displaced uterus does not spontaneously right itself, its reposition and maintenance in a proper position are urgently to be recommended, even if severe symptoms of incarceration are not yet present; (4) In cases of incarceration, reposition is the first thing to be tried. Only when this has failed does the question of further measures arise.

Haultain (*Edin. Med. Journ.*, June, 1890) contributes an interesting paper on exfoliative cystitis in the female. He reports a case, and has collected thirty-three others. It occurs either in

connection with retroversion of the gravid uterus or with labour. The shortest period of retention as yet known to produce it is four days. It is not necessarily fatal; only eight out of the thirty-four cases died. The cause of death in all but one was exhaustion; the exception was a case in which the bladder ruptured, and urine escaped into the peritoneum, ten days after exfoliation. Incontinence of urine usually remains even when recovery takes place.

9. I next refer to two papers, the first of which illustrates a point in the diagnosis, and the second gives a hint as to the management of *hydramnios*.

Nachet (*Archives de Tocologie*, Nov., 1889) says that when by the ordinary signs a pregnancy complicated with *hydramnios* has been recognised, if there is no tension of the lower uterine segment and the membranes in contact with it, at the same time that there is great tension over all the rest of the uterus, and the ordinary signs of twin pregnancy cannot be made out (and this in such cases is usual), we should not only suspect, but diagnose, a twin pregnancy. The flaccidity of the lower segment and its membranes, the tension of the rest, are signs contradictory of simple *hydramnios*; they show that the dropsical ovum is not in contact with the lower uterine segment, since it does not make it tense. It is separated from it by something, and this something can only be a second ovum.

Phocas (*Ann. de Gyn.*, Mai, 1890) relates a case of *hydramnios*, causing severe pressure symptoms, treated by puncture through the abdominal wall. Four litres (about 7 pints) of fluid were withdrawn, with great relief. The patient was delivered of twins, one of them living, about six weeks after the tapping. The tumour was supposed to be cystic, partly because the uterus was so distended and tense that the rhythmical contractions of the uterus could not be recognised. But when it was tapped the flow was intermittent, and the gushes were coincident with appreciable hardening of the tumour. Hence it was at once diagnosed as a uterine swelling.

10. There are few subjects in which there has lately been greater progress than in that of *ectopic pregnancy*. I first quote papers illustrating its morbid anatomy.

Keller (*Zeit. für Geb. und Gyn.*, Bd. xix.) writes on the diagnosis of tubal pregnancy, but not from a clinical point of view. His paper is histological, and deals with the diagnosis of tubal pregnancy from *hæmatosalpinx* not the result of pregnancy. The main evidence of pregnancy is the discovery of chorionic villi. The presence of decidual cells is here not so valuable an aid as in

the diagnosis of uterine pregnancy, because long before decidual cells can be found the diagnosis can be made from the chorionic villi. But a negative result in the search for chorionic villi or decidual cells cannot be taken as sufficient evidence that the condition is independent of pregnancy. The discovery of a cause for the hæmorrhage is much more convincing.

Orthmann (*Zeit. für Geb. und Gyn.*, Bd. xx.) describes ten cases of tubal gestation, in which the parts were carefully examined. In four of these there was no blood in the peritoneal cavity, but in three of them the tube was distended with clot, so that rupture was close at hand. He thinks it also possible that there may have been bleeding from the abdominal end of the tube, the blood having been absorbed. In the others there had been intra-peritoneal hæmorrhage; in two from rupture, in four from the open abdominal end of the tube. In each of the ten there was a firm organised clot in the interior of the tube. In the majority of them the uterine end of the tube showed signs of catarrhal inflammation, swelling of the mucous membrane, thickening of its folds, infiltration of it and the muscular tissue with small cells, hypertrophy of the muscular fibres and the connective tissue between them. He regards these changes as causes of the tubal pregnancies, not as its effects, for there were also increased tortuosity of the tube, and peritoneal adhesions. In every case a decidua vera was present, the decidual cells having developed out of the connective tissue of the mucous membrane. As a rule, the decidual cells were only present on the superficial folds of mucous membrane, only round-celled infiltration being present at the deeper parts. A decidua reflexa grows up round the embryo, but soon disappears. A decidua serotina could only be demonstrated with difficulty. The author advances the following conclusions:— (1) If a firm organised clot be found in the interior of a tube, tubal pregnancy may be inferred almost with certainty. (2) The intra-peritoneal hæmatocele, which complicates tubal pregnancy, comes either from rupture of the sac or from a kind of "abortion" through the abdominal end of the tube. (3) The discovery of decidual cells is not unconditionally necessary to establish the diagnosis of extra-uterine pregnancy. (4) Chorionic villi can be demonstrated in all cases of tubal pregnancy in the first month.

The best treatment, when possible, is unquestionably the removal of the sac before rupture. But the symptoms before rupture are so slight that this is seldom possible, because the diagnosis, as a rule, is not made. The cases next quoted are the only ones that I find published during the year in which this was done.

Orthmann (*Zeit. für Geb. und Gyn.*, Bd. xvii., S. 319) exhibited to the Obstetrical Society of Berlin a tubal gestation removed before rupture. It was not diagnosed as such, being taken for an ovarian tumour. The patient last menstruated at the end of November. At the end of December hæmorrhage came on and was almost continuous until the operation on February 25. A firm blood clot was found within the sac. Dr. Veit pointed out characters in the specimen which led him to believe that in this, as in a specimen demonstrated by him, dilatation of the tube had been present before impregnation.

Tuttle (*Amer. Journ. of Obst.*, 1889, p. 951) relates a case of tubal pregnancy operated on before rupture. Dr. Tuttle "wavered in diagnosis between pyosalpinx and tubal pregnancy, leaning towards the former."

Baldy (*Amer. Journ. of Obst.*, 1889, p. 1301) exhibited to the Obstetrical Society of Philadelphia a specimen of tubal pregnancy successfully removed prior to rupture. It was not diagnosed. Parvin, at the same meeting, exhibited a similar specimen. The diagnosis in this case was "probable." Goodell, in the discussion, mentioned a case in which he had operated prior to rupture.

Herman (*Brit. Med. Journ.*, Sept. 27, 1890) publishes a case in which tubal gestation was both diagnosed and removed before rupture, the patient having three years before had the opposite tube removed for the same condition. As illustrating the latter point, the next paper I refer to is instructive.

Veit (*Zeit. für Geb. und Gyn.*, Bd. xvii., S. 335), in exhibiting to the Berlin Obstetrical Society a hæmatosalpinx due to tubal pregnancy, mentioned that he had in the same patient, more than a year previously, removed a similar pregnancy on the opposite side. Out of twelve cases in which he had removed tubal pregnancies, in three a similar condition subsequently occurred in the opposite tube. He had also repeatedly seen normal pregnancy after removal of a tubal pregnancy, so that extra-uterine pregnancy by no means forebodes future sterility.

Until recently, we used to read, in American journals, of electricity as being "the treatment for early extra-uterine gestations," and those who did not use it were spoken of as being quite behind the time. But even in America the uselessness of electricity in extra-uterine gestation appears getting now found out. In the *New York Med. Journ.*, 1889, Vol. ii., p. 247, the writer of a review says that "it is not improbable that the day is near when it will become obsolete;" and at page 252 Dr. Goodell is reported to have said that he "agreed with those who held to the uselessness of electricity." Brothers (*Amer. Journ. of Obst.*, Feb.,

1890), an advocate of the electrical treatment of supposed early extra-uterine gestation (see "Year-Book," 1889, p. 255), contributes a paper on the subject, from which the following facts are taken. Out of 53 cases of the kind, in three the foetus was "probably expelled into the uterine cavity." In four, alarming symptoms supervened, but passed away. In two cases suppuration with discharge of the foetus occurred. "Death occurred in five cases, but only one can be properly attributed to the use of electricity." Still, the other four are instances of failure. With at least seven clearly-proved failures it seems to me clear that electricity cannot be relied upon, and Dr. Brothers does not seem to have at all present to his mind the probability that in some of the cases he quotes the diagnosis was erroneous, and that in others recovery would have taken place without treatment. Cases in which the foetus was probably expelled into the uterine cavity are, I think, as a critic in the *Lancet* put it, too much for the sceptical nineteenth century. Dr. Brothers thinks that no harm is done by electrical treatment. But in a genuine case the greatest injury is delay. One of his conclusions is that beyond the third, or possibly fourth, month electricity should not be resorted to. That is, in cases advanced enough for accurate diagnosis electricity has been proved to be useless. Dr. Ricketts, in a discussion on the subject by the Obstetrical Society of Cincinnati, said, "In referring to the advocates of electricity, he would call attention to one singular fact, viz., that these persons are always so very sure of their diagnosis, whilst the operators are not so positive until they have brought the senses of touch and sight into requisition." Dr. Wenning records (in the same journal) a case of dextro-torsion of the pregnant uterus which was taken for extra-uterine pregnancy. In this case both faradism and galvanism were used, and 2 oz. of liquor amnii were drawn off, but without the slightest effect on the life of the foetus. Why should these measures have more effect on an extra-uterine foetus than on an intra-uterine? Tuttle (*Amer. Journ. of Obst.*, 1890, p. 13) relates four important cases of extra-uterine pregnancy. Their importance is, that they demonstrate this: that all danger to the patient does not cease with the death of the embryo. In one case, two months after the rupture of the tube and death of the embryo, operation was necessitated because of the increased suffering and steady loss of health and strength. Dr. Tuttle puts the case concerning electricity very forcibly:—"There is no single symptom, and almost no group of symptoms, which leads us to diagnose an ectopic gestation, which may not have their origin in other conditions; and countless errors in diagnosis of this nature constantly

occur at the hands of the very masters in this difficult field. How difficult, then, is it to accept much of what is put forth as statistical proof of the greater safety and equal efficiency of what is termed the American method of treatment by electricity!"


The three next cases I refer to on account of their unusual features.

Ferguson (*New York Med. Journal*, vol. ii., 1889, p. 572) relates a case of ectopic gestation advanced to three months, and treated by operation, in which death took place sixteen hours after the operation, from uræmia. There was somnolence, and scanty, bloody, albuminous urine. The autopsy showed acute nephritis, but no injury to either ureter.

Pratt (*New York Med. Journal*, 1890, Feb. 8) relates a case of extra-uterine pregnancy, the fœtus being situated behind the uterus, and so pressing on the rectum as to cause obstruction. The bowels not having been moved for thirteen days, in spite of cathartics, enemata, &c., interference was judged to be urgently required. An incision was made through the vagina, with the knife of the Paquelin cautery. Liquor amnii escaped, and a hand dropped through. The fœtus was turned, a foot brought down, and the child extracted. No attempt was made to remove the placenta, but the bleeding was checked by plugging the cyst with cotton. The patient was with the utmost difficulty resuscitated from collapse. Twenty-four hours later, an attempt was made to remove the plugs, but as this resulted in fresh bleeding the tampons were left in eighty hours. The placenta came away piecemeal during daily douching. At the point of attachment of the placenta a recto-vaginal fistula formed, through which fæces and gas escaped. This healed spontaneously in about three weeks. The patient ultimately completely recovered.

Dr. C. M. McQuibban (*Brit. Med. Journ.*, 1890, vol. i., p. 947) reports a "unique" case of extra-uterine pregnancy. The gestation was behind the uterus. The Fallopian tubes were not enlarged, and the abdomen was opened, and the bladder (which had filled very rapidly) cut into. It was sewn up, the relations of the retro-uterine cyst explored, and then this latter opened from the vagina, and a four-months' fœtus extracted. Frequent irrigation was used. The cord and placenta came away on the fourth day. On the thirteenth day urine came away from the abdominal wound. This continued, unless a catheter was in the bladder, till the fortieth day. The patient finally got quite well.

Lastly, I quote papers bearing on the treatment of ectopic gestation in its later stages.



Olshausen (*Deutsche med. Woch.*, 1890, Nos. 8—10) makes an important contribution to our knowledge of extra-uterine pregnancy. He remarks on its great frequency, and says that we know that a great number of retro-uterine hæmatocoeles are to be regarded as ruptured extra-uterine pregnancies. Velt puts the proportion at 28 per cent., and Olshausen thinks this is understating it. He thinks it often occurs twice in the same patient. He has once verified this by operation, and seen several, which, as rupture occurred early (and I presume the patient got well), were only convincing to the observer. He refers to cases published by Pletsch, Winkel, and Puech, in which also the fact was verified. He holds that the possibility of a primary fixation of the fertilised ovum on the peritoneum, and its further development with the formation of a placenta, is as yet not proved. But proof to the contrary has not been adduced, and it is possible that the cases described as ovarian pregnancy may have been cases in which the ovum was inserted on the outside of the ovary, and under the pressure of the growing ovum the ovary became so flattened and thinned that it was no longer recognisable, but was blended with the wall of the cyst. He points out that in a certain proportion of cases amenorrhœa is not present, and diagnosis is therefore rendered difficult. The chief object of Olshausen's paper is to consider the best line of treatment in the later stages. If the fœtus has died in the second half of pregnancy, he holds that the best course is to wait eight or ten weeks and then perform laparotomy, unless special circumstances should call for earlier intervention. It is better to wait, because all experience shows that in the first six or eight weeks after the death of the fœtus the placental circulation is not yet obliterated, and therefore its separation will be attended with much risk of hæmorrhage. There is some risk in waiting, because rupture may take place even after the death of the child, and although the patient is absolutely at rest in bed. The further the pregnancy has gone on, the more sudden is death likely to be. Olshausen quotes a case of Breisky's illustrating this, and reports one of his own, in which, after term, sudden death took place, while the patient was awaiting operation, from hæmorrhage into the sac, though rupture of the sac did not take place. The author says that although the report of the autopsy leaves hardly any doubt that the tubes and the ovaries in no way took part in the formation of the sac, and that therefore it was a primary abdominal pregnancy, yet he is not convinced, for he was not sure that the fimbriæ of the tubes were present, and the report was not clear as to the position of the placenta. The cases thus illustrate the difficulty of certainty

that a pregnancy is primarily abdominal. He reports other cases presenting features of especial interest. In one case, at the seventh month of pregnancy, the foetus was found at places firmly adherent to the membranes, so much so that two and a-half months after the operation hairs could be seen in the granulations of the abdominal wound. Another case was very remarkable: First, in that during the eighth month of pregnancy a thin clear fluid for several days flowed continually away from the vagina. Olshausen has no doubt that this was the liquor amnii. At the operation, the uterine end of the pregnant tube was considerably thickened, although no marked dilatation of the tube was perceptible. Second: the sac was stuffed with iodoform gauze. Twenty-four hours afterwards there was complete loss of consciousness, without fever. This was attributed to iodoform poisoning, and the gauze was removed, and replaced by carbolic gauze. On the second day the patient had an eclamptic attack. For several days after the third there was amaurosis. The mental disturbance lasted fourteen days. Third: recovery was interrupted by a rigor, followed by blood-spitting, without fever. This was attributed to small pulmonary emboli. A third case of interest is related, in which symptoms pointing to rupture of the sac occurred about five weeks before the expected termination of pregnancy. About three weeks after the occurrence of these symptoms, laparotomy was performed. The child was living, and free in the abdominal cavity, without a trace of sac or membranes. The placenta was implanted on the right broad ligament; the greater part of its periphery was quite free, only about a third of it being attached to the ligament. The ligament was tied with two silk ligatures in such a manner as to include the whole part to which the placenta was attached, and then the placenta was removed. The patient did well. Olshausen recommends that in cases of intra-ligamentous gestation, hæmorrhage should be arrested during the operation by tying the spermatic and uterine arteries. The spermatic artery, he says, even in the most complicated cases, can often easily be found, for its place is marked by the infundibulo-pelvic ligament, in which it runs. As to the uterine artery, the operator must be satisfied by putting in a deep ligature through the ligament, close to the uterus, or a large clamp at the point where the gestation sac is in contact with the uterus. In this way hæmorrhage may be mastered without much loss of time. In the second half of pregnancy, with the child living, Olshausen thinks that the sooner operation is done the better, no regard being had to the life of the child. Near the end of pregnancy the death of the child should not be waited for,

because delay brings with it more risk than operating during the life of the child. Where possible, the whole sac should be removed, otherwise the sac should be sutured to the abdominal wall. Elytrotomy and drainage through the vagina are to be rejected. In the future it will have to be considered whether in some suitable cases the placenta should not be left behind and the abdomen closed.

Braun-Fernwald (*Arch. für Gyn.*, Bd. xxxvii.) describes two cases of primary laparotomy for extra-uterine gestation, in both of which the placenta was separated and removed at the time of operation, and its seat of attachment sutured. One patient operated on near term died from hæmorrhage—the child lived. The other case was successful both for mother and child. It was of especial interest—(1) because the sac had burst, and the liquor amnii escaped into the peritoneal cavity, where it produced the physical signs of ascites; (2) the placenta was attached to the back of the uterus, the right broad ligament and the descending colon. The broad ligament was first transfixed and tied, and then the placenta was stripped off without serious hæmorrhage. As much of the sac as possible was brought out of the wound and removed, together with the body of the uterus. The stump of the uterus, together with the part of the sac that could not be removed, was sutured to the parietal peritoneum, and thus the peritoneal wound entirely closed.

3. The mechanism of labour, normal and abnormal.

These papers relate to small points, and are only indirectly of practical utility.

1. The first is on *the behaviour of the pelvic floor during labour*.

Webster (*Edin. Med. Journal*), from a comparison of frozen sections, lays down the following propositions as to the behaviour of the pubic segment of the pelvic floor during labour: (1) The pubic segment is not at all pushed downwards during labour. (2) On the contrary, it is elevated, mainly by the upward traction of the uterus. (3) This traction is at work from the very commencement of labour, but, owing to opposing forces, it does not begin to raise the segment until the first stage has advanced for a certain period. (4) In the second stage the upward and forward resistance of the sacral segment helps to push the pubic segment against the pubes through the medium of the child. (5) The elevation of the pubic segment may be somewhat retarded by long persistence of the bag of membranes. (6) The greater part of the bladder is not drawn up into the abdomen, but remains

behind the pubes, only a small portion being above the brim.
(7) The urethra is not elongated during labour.

The next contains valuable clinical generalisations as to—

2. *The causes and effects of rupture of the membranes at different times.*—Eisenhart (*Arch. für Gyn.*, Bd. xxxv.), from an analysis of 2,289 labours, brings evidence to prove the following conclusions (I omit the less important):—The membranes usually burst during the first stage of labour. Premature rupture of membranes is more frequent in first than in subsequent labours. In old patients premature rupture is more common than in young. It is especially frequent in those suffering from purulent discharges. It is favoured by contracted pelvis, abnormal presentations, twins, hydramnios, and eclampsia. The larger the child the less likely is premature rupture of membranes. First labours, in which early rupture of membranes occurs, are on the average over more quickly than those in which the bag of membranes is long maintained; but the reverse is the case in subsequent labours. This is because the uterine inertia is infrequent when the membranes rupture early. The later the rupture of the membranes, the less frequent is post-partum hæmorrhage. The same thing holds good of fever in child-bed, and of most puerperal diseases. Operative delivery is more often required, and dead or still-born children are more frequent when the membranes rupture prematurely.

3. The paper next quoted shows that the action of the uterus after rupture of the membranes is not quite the same as is usually taught. Herman and Goulet (*Lancet*, Oct. 12, 1889), in a paper on *the extension of the fetus in the second stage of labour*, show that the uterus, instead of driving on the child by pressing on the breech and forcing it down, does so by grasping and straightening out the fœtus, obliterating the bend of the fœtal spine which is present throughout pregnancy, and thus increasing the distance between the head and the breech. When the head is distending the perineum, the breech is no lower down than it was when labour began. The same thing applies to breech presentations.

The next contribution is a refutation of a somewhat fanciful theory as to *why does the head present oftener in the right oblique diameter of the pelvis?*

4. Hasse and Van Zakrzewski (*Zeit. für Geb. und Gyn.*, Bd. xix.) have made an investigation to see if slight scoliosis and resulting asymmetry of the pelvis, such as is so common that it may be considered a normal thing, have any influence in determining in which oblique diameter the head enters the pelvis. They find that no such influence can be demonstrated, and think that the presence

of the rectum on the left side has a much more potent effect than a slight difference between the two sides of the pelvis.

The same journal contains another paper, also an attempt to refute an erroneous view: *Is asymmetry of the fetal head normal?*

5. Dr. Georg Runge (*Zeit. für Geb. und Gyn.*, Bd. xix.) gives the result of very careful measurement of the foetal head. The following are his conclusions on the point investigated: (1) That the existence of pronounced asymmetry of the foetal skull independently of labour (as maintained by Stadfeldt) is very doubtful. (2) Weber's view, according to which the asymmetry is produced during labour, is more probable. (3) The increased curvature of the anterior parietal bone, and flattening of the posterior, which is an effect of labour, with the vertex presenting, is quickly obliterated after delivery, so that what difference there is between the two parietal bones is only trifling. (4) Labour makes no appreciable difference in the curvature of the frontal bone. (5) In overriding of the parietal bones, over and under one another and the adjoining bones, a movement of rotation about an axis passing through the parietal protuberance can be perceived.

The following paper is of interest from the exceptional nature of the cases described:

6. Glöckner (*Zeit. für Geb. und Gyn.*, Bd. xviii., S. 365) describes three cases of labour with slight flattening of the pelvis in which the mechanism was peculiar. The head entered the pelvis with the occiput almost directly forwards, the forehead behind, extremely flexed, so that the presenting part was the occipital protuberance, and the smaller fontanelle was close to the sacral promontory. In this position it was forced down, the sagittal suture, or the sagittal margin of one parietal bone, passing over the promontory, until the greater fontanelle came to lie opposite the promontory. Then the posterior fontanelle moved towards the side, the sagittal suture came to lie in the oblique diameter of the pelvis, and the anterior fontanelle descended, but not to such an extent as to bring it on a level with the posterior. Then delivery was completed in accordance with the usual mechanism. In the discussion which followed, Olshausen said he remembered similar cases, and Veit that he had seen such.

Glöckner's cases are very valuable from the completeness with which the mechanism was observed. There can be no doubt that the head sometimes presents with the head in the antero-posterior diameter of the brim. I have delivered in such a case with forceps, and found the marks of the blades symmetrically imprinted on the head. Ramsbotham says: "I have known them obtain at

the commencement of labour." Dr. Graily Hewitt has published a case (*Lancet*, May, 1864).

4. Pelvic deformity.

Those who are interested in the rare deformity of which the paper next referred to treats, and who do not read German, will find in the *Nouvelles Archives d'Obst. et de Gyn.*, 1890, a series of illustrated articles by Neugebauer on the subject, far too long and complete to be condensed here.

Spondylolisthesis.—Neugebauer (*Arch. für Gyn.*, Bd. xxxv.) describes a case of commencing spondylolisthesis, unique in this respect, that the deformity was examined while the soft parts were in good condition. The ligaments were found to be intact, whence Dr. Neugebauer concludes that the deformity was not due to any sudden fracture or dislocation, but rather to deformity of the bones produced by pressure and traction, a deformity analogous to that of knock-knee and flat-foot. He finds that congenital inter-articular fissures of the fifth lumbar vertebræ are even commoner than at the time of his former writings on the subject he believed them to be. He now estimates them to be present in about 5 per cent. of all cases; which makes it, as he says, surprising that spondylolisthesis is not much commoner than it is. But the ligamentous bands which supply the place of the defective bone are stronger than the bone itself would be. The bones yield more readily than the ligaments.

5. The complications and accidents of labour.

1. *Eclampsia*.—Dr. Herman has published five cases (*Trans. Obst. Soc.*, Lond., 1890) in which especially close observation of the temperature and urine was made; but as he has refrained from generalising from these few cases, it will be sufficient to mention them.

The following paper deals with the treatment. Its conclusions are not of much value, because (1) the cases are second-hand, Dr. Trimble not having observed them himself; (2) the treatment in almost every case was of too complicated a kind for inferences to be drawn as to the effect of any one agent. But imperfect as it is, it is better than most literature on the subject.

Trimble (*Amer. Journ. of Obst.*, Aug., 1890) contributes a paper on puerperal eclampsia, from which I extract the following facts as to treatment, based on forty-eight cases, the notes of which have been supplied to Dr. Trimble by other doctors. Seven patients were bled, of whom four recovered, and three died. Morphine was used in fourteen, of whom ten recovered, and four died. Veratrum was used in twenty-six cases, of which twenty-three recovered, and three died. These figures, however, must be

read with the qualification that these methods of treatment were hardly ever used alone, chloroform, chloral, bromide, etc., being freely used along with them. Dr. Trimble's conclusion is that if the patient is at all plethoric, veratrum should be given in doses of from m xv to 3j ; then, if required, follow with morphine. If the patient be anæmic it is best to begin with morphine. Bleeding he thinks is rarely necessary, because we have a better agent at command, viz., veratrum. It is quickly absorbed, "enters the vasa vasorum, and through them impairs the sensibility of the vaso-motor nerves. The blood-vessels thus lose their tenacity and power of contraction." Morphine and whisky counteract the excessive action of veratrum very certainly and promptly. Dr. Trimble does not, however, think that veratrum is a specific. But with it, morphine, chloral, and potassium bromide, he thinks that nearly all cases that are capable of cure can be relieved.

2. *Placenta prævia*. The name of its author will ensure respect for the first paper I quote. The two papers which follow it defend a new theory of this condition.

Dr. Braxton Hicks (*Brit. Med. Journ.*, Nov. 30, 1889) lays down the following rules for the treatment of placenta prævia. 1. After the diagnosis of placenta prævia is made, proceed as early as possible to terminate pregnancy. 2. When action is commenced remain by the patient. 3. If the os be fully expanded and placenta marginal, rupture the membranes, and wait to see if the head soon enters the os. 4. If it does not, use forceps and version. 5. If the os be small, and the placenta more or less over it, detach the placenta round the os; and if no further bleeding occur wait an hour or two. If the os do not expand, and dilating bags are at hand, use them. If the forceps can be admitted easily, they may be used; if not, turn by the combined internal and external method, so that the os is plugged by the leg or breech of the fetus, then leave the case to nature, with gentle assistance, as in footling or breech presentations. 6. If the os be small, and you have neither forceps nor dilating bags, then resort to combined version, leaving the rest to nature, gently assisted. 7. If sharp bleeding come on, turn by combined method in order to plug by the breech. 8. If fetus dead, or labour before the end of seventh month, version by combined method is best, no force following.

Kaltenbach (*Zeit. für Geb. und Gyn.*, Bd. xviii.) advocates a new theory of placenta prævia, first suggested by a specimen exhibited by Hofmeier, and since supported by two other specimens, another demonstrated by Hofmeier, and one by Kaltenbach. According to this theory, placenta prævia is not the result of a primary implantation of the ovum on the lower uterine segment.

If it were so, he points out, the decidua reflexa ought to be found growing upwards into the uterine cavity, and such a condition has never yet been observed. In all specimens of early pregnancy hitherto examined, the decidua reflexa has been found growing downwards from the fundus. The chorionic villi which grow into the decidua reflexa do not atrophy as soon as the placenta begins to be formed in the decidua serotina. Hofmeier's specimen above alluded to shows placenta-like masses of chorion at both poles of the embryo, although the decidua vera and reflexa were not yet in complete contact, lower as well as upper. The condition is pathological, if the chorionic villi within the reflexa, covering the lower pole of the ovum, definitely persist till the end of pregnancy. When this is so, the lower pole of the ovum may or may not become united to the lower segment of the uterus. If it does, we have placenta prævia. For this to take place there must be great development and vascularity of the reflexa. Chronic endometritis produces thickening of the decidua, and increased secretion from it, which delays the union of the vera and reflexa. The physiological development of the chorionic villi depends upon the requirements of the ovum, upon its tissue change. Its mode of development may be altered by atrophy as well as by hypertrophy of the endometrium. In each case there will be an abnormally large and thin placenta. Placenta prævia is a persistence of the chorionic villi within the reflexa of the lower pole of the ovum. It is part of a physiological compensating process, having for its object to secure for the ovum under certain conditions a due supply of oxygen and nutritive material. If this compensatory process fails abortion takes place. Dohra, Jacquemier, and D'Oultrepoint have shown that abortion in the early months of pregnancy from placenta prævia is frequent. In some cases placenta prævia is only a temporary stage in the development of the ovum. In others it continues to the end, and endangers life. There is another way in which the inability of the decidua serotina to nourish the fœtus may be compensated. The chorionic villi may spread into the decidua vera beyond the point of origin of the decidua reflexa. Then we have *placenta marginata*—i.e., a placenta the margin of which extends beyond the point of attachment of the membranes. Placenta prævia and placenta marginata are thus allied in their origin. They are allied also in their effects, for hæmorrhage and abortion are frequent with placenta marginata. Endometritis is the main factor in the causation of both.

Schrader (*Zeit. für Geb. und Gyn.*, Bd. xix.) describes a case observed by him which supports the view of Kaltenbach as to the pathogenesis of placenta prævia; viz., that it is a development of

placenta within the decidua reflexa covering the lower pole of the uterus. In Schrader's case the vera and reflexa were not in contact, and the placenta had developed within the reflexa. Placenta membranacea, succenturiata and spuria can likewise be explained as a result of persisting vicarious activity of the decidua reflexa.

The following cases bear upon the use of the tampon for uterine hæmorrhage during pregnancy.

Klotz (*Cent. für Gyn.*, 1890, No. 15) reported to the Dresden Obstetrical Society two cases in which to arrest hæmorrhage from the uterus a firm tampon was used, with the result that hæmorrhage went on inside the uterus, distending it, and causing collapse in one patient, and in the other death was averted by emptying the uterus.

3. *Rupture of uterus*.—I give first the conclusions arrived at in three careful essays independently reviewing the whole subject, and then a brief abstract of two exceptional cases.

The treatment of rupture of the uterus.—Leopold (*Arch. für Gyn.*, Bd. xxxvi.) urges strongly the advantages of abdominal section. He lays down the following propositions:—1. Uterine rupture is far more often than is believed in the vesico-uterine pouch. The bladder may be separated from the uterus. Such cases are best treated by keeping the uterus, by a pad and bandage, in a position of ante flexion, and stuffing the rent, the uterus, and the vagina with iodoform gauze. 2. The longer the time that has elapsed before treatment is begun, and the more the attempts at delivery, the worse the prognosis. 3. Recent ruptures, even of magnitude, offer a good prospect of recovery. 4. The child dies quickly after the rupture. The pulse of the mother very quickly, even in an hour, becomes alarmingly weak, but with prompt, energetic treatment against hæmorrhage patients may be saved. 5. The child should be delivered in the way which is best for the mother, and this will be generally craniotomy or embryotomy. 6. If the presenting part of the child is engaged in the true pelvis, delivery should be by the vagina. 7. If the child has escaped into the abdominal cavity, laparotomy should be performed with strict antiseptic precautions. General practitioners should send such cases to the nearest hospital. 8. Before and after delivery by the natural passage, the vagina, and uterus, and the rent should be washed with a 2 per cent. carbolic solution. The upper margin of the rent should be pulled down with a sharp hook to do this. Then a long and thick strip of iodoform gauze should be put in the genital canal, up to the fundus uteri, and not removed for 8 or 10 days. 9. If delivery by laparotomy be chosen, the belly cavity should be cleansed, a strip of gauze put in

the vagina and uterus as above mentioned, the margins of the rent put in apposition, and then the rent plugged and bleeding stopped by stuffing the wound with a similar strip of iodoform gauze, the end of which should be brought out at the lower angle of the abdominal wound. The author relates a case treated in this way, in which the gauze strips were removed from the genital canal and the abdominal cavity on the fifteenth day. The author believes that if cases were treated on these lines many women would be saved who would otherwise die. But every case must be treated according to the circumstances—no universally applicable rule can be laid down.

Schäffer (Review in *Cent. für Gyn.*, 1890, No. 4), in an inaugural dissertation, has analysed 100 cases of complete rupture of the uterus, with escape of the fœtus into the abdominal cavity, and subsequent laparotomy. He comes to the conclusion that laparotomy ought always to be done, even if the child has been delivered *per vias naturales*; and he warns against prolonged and violent efforts to effect this latter object. The uterine wound should be sutured, but its lower angle left open and drained through the abdominal wall. If the rent runs high, and much fluid has run into the peritoneal cavity, Douglas's pouch should be drained. If the patient's condition is so unfavourable that a prolonged operation is not advisable, and the rent is behind, we may be satisfied with drainage of Douglas's pouch. Porro's operation is only indicated when there has been great injury to the uterus, and also for the purpose of avoiding the repetition of similar danger to the mother's life.

Reed (*New York Med. Journal*, 1889, vol. ii., p. 505) lays down the following rules for the treatment of ruptured uterus:—

1. In cases of ruptured uterus, with the head presenting, delivery by forceps should be attempted, but should be abandoned if not found easily practicable. Turning should not be undertaken, but the case should be at once recognised as one for either the Cæsarean or Porro operation.
2. In cases of ascertained incomplete rupture treatment should be by antiseptic irrigations and rest.
3. All cases of ascertained complete rupture should be submitted to abdominal section so soon as the condition of the patient with reference to shock will admit, for the following purposes, viz., (1) to explore the abdomen, (2) to remove all foreign bodies, (3) to cleanse the peritoneum, (4) to close the rent if the labour has been short and the uterus not seriously damaged, and (5) to remove the uterus if the labour has been long and the uterus seriously damaged. In illustration of these precepts Dr. Reed relates two cases. In one, both fœtus and placenta were

supposed to have been delivered through the rent. Abdominal section was performed, and in the rent a piece of placenta of about the size of three fingers was found. The peritoneal wound was closed with catgut suture, and the abdominal incision closed in the usual way. The patient recovered. In the other the child was extracted through the rent, and the cord severed. On trying to deliver the placenta, neither cord nor placenta could be found. Abdominal section was performed, and the placenta easily found. The peritoneum was sewn up as in the former case, but the patient died from peritonitis. The cases illustrate the fact that complete delivery of the products of conception through the rent is not always quite easy.

Lusk (*New York Med. Journ.*, vol. ii., 1889, p. 281) relates a case of uterine rupture due to cicatricial contraction of the lower segment. "The rent extended obliquely across the uterus from the upper cervical position to the right side of the fundus." The mechanism of rupture in this case was not that described by Bandl; but the fact of its being exceptional in this respect does not detract from the value of Bandl's work.

Coe (*New York Med. Journ.*, vol. ii., 1889, p. 556) relates a case of supravaginal amputation of the ruptured uterus for rupture which was peculiar as to the circumstances in which the operation was done. The operation was done in a dirty tenement house. The cervix was constricted by a piece of tubing cut from a syringe, and secured in the wound with knitting-needles. The torn peritoneum below the stump was sewn up with a continuous catgut suture. The peritoneum was washed out with hot water. No drainage-tube was used. On the second day there were general abdominal tenderness and distension, but by maintaining free catharsis and using the ice-bag, peritonitis, in Dr. Coe's opinion, was aborted. On the fourth day the india-rubber tubing was replaced by a Koeberlé's *serre nœud*. The necrosed piece of stump was removed at the end of a week, and the cavity left packed with iodoform gauze. The patient recovered.

6. Operative delivery.

A.—BY THE NATURAL PASSAGE.—Practical hints will be found in most of these papers:—

1. *As to the mode of inducing labour.*—Pajot (*Annales de Gyn.*, Juillet, 1890) relates a case illustrating the occasional difficulty of inducing labour. Labour was to be brought on at seven months. June 7.—A bougie as thick as the little finger was put in between membranes and uterus for about 4 inches. June 8.—No pains; another bougie put in as well. June 9.—No pains; bougies withdrawn, and sponge-tent, thickness of thumb,

introduced. June 10.—Vaginal tepid douche repeated four times. June 11.—Still no pains. Two tents put in, and douche given every three hours. This produced uterine action, which lasted three hours, and then quite ceased. June 12.—India-rubber dilator, $2\frac{1}{2}$ inches in diameter, put in. This remained in the cervix two days without provoking pain. June 14.—Two other dilators of the same dimensions were introduced, and a douche given every two hours. This at length was effective, and the child was born living, eight and a half days after the first steps to provoke labour.

2. *The management of labour with contracted pelvis.*—I quote two papers: one a review of the whole subject; the other, an account of a manœuvre which may be found useful:—

Grapow (*Zeit. für Geb. und Gyn.*, Bd. xvii.) sketches the history of *treatment of labour with contracted pelvis*. First, cutting up of the child. Then (1550), podalic version, introduced by Paré. Next to that, forceps. Then (1756), premature labour, introduced by Denman. Since then it has been the unceasing study of obstetric teachers to perfect the *technique* and define the suitability of these operations. The *forceps* is only suitable when membranes are ruptured, os uteri fully dilated, and head engaged in the brim, not movable above it. As to turning, there are different schools. Winckel, Spiegelberg, and Scanzoni say, wait so long as the spontaneous entry of the head seems possible and at all likely. Others, among them Schröder, say turning as soon as the conditions are favourable for it. Olshausen will only turn in high degrees of deformity, or when pains are very weak, or from the experience of previous labours may be expected to be weak. Grapow lays down different lines in different cases. In primiparæ, with moderate contraction, turn only when indications are absolute; in others, wait for a spontaneous termination, and if this do not occur, interfere with forceps or perforator. In multiparæ, with a clear history pointing to the need for interference, turn early, either in the first stage or at the beginning of the second; in the latter case combining turning with extraction.

The indications for Cæsarean section are now of a very shifting character, being pushed this way and that by the dread of, or zeal for, operation, and modified by the results attained by operators. There is a tendency to its too ready performance. In illustration the author relates a case of spontaneous delivery of a living child through a brim of 6.5 cm. ($2\frac{1}{2}$ inches). He quotes an opinion which has been expressed, that as soon as the mortality after Cæsarean section has been brought down by that or other abdominal operations, it should be performed as an

alternative preferable to that of destroying a living child. Grapow holds that Cæsarean section should only supplant craniotomy when the risk to the mother has been made no greater than that of craniotomy, and points out that while Cæsarean section has been improved, other methods of delivery, including craniotomy, have been improved likewise; and statistics compiled in pre-antiseptic days cannot be taken as representing its mortality. Grapow objects also to the wish of the patient being taken into account unless that wish has been deliberately expressed before labour, after the mortality of the operation has been fully put before her. The request of a woman weary of the suffering of prolonged labour should not be treated as her deliberate opinion. And the life of the child is not so very valuable, for in Europe 18 per cent. of children die within the first year, and the mortality of illegitimate is larger than that of legitimate children. Cæsarean section must also be compared with the induction of premature labour. The mortality of this operation, done with proper precautions, is not larger than that of normal labour; and the infantile mortality, with due care, should also be but little more than that of normal delivery. The causes of death of the child in premature delivery have been defined as the less resisting power of the bones, the greater friability of the vessels, the frequency of abnormal positions, errors in judgment as to the period of pregnancy, and other accidents not preventable or peculiar to premature labour, such as premature detachment of placenta, etc. Such causes as erroneous judgment of the period of pregnancy ought, with increasing knowledge, to be eliminated. In judging of the probable difficulty of delivery, the degree to which the child's head can be pressed into the pelvis by the hands on the abdomen is a very useful guide. Extraction by turning, Grapow thinks, is the more dangerous the less mature the fœtus. As a means of inducing labour, the author says he and others have given up the vaginal douche, and now use the bougie introduced between the uterus and membranes, a method for long the favourite in English practice, owing to the teaching of Barnes.

Muret (*Berl. klin. Woch.*, 1890, S. 381) describes three cases of contracted pelvis in which delivery was aided by pressing the head into the pelvis with the hand externally applied so as to press directly on the head. When by this means the head had been forced past the contracted conjugate, it was seized with forceps and delivered. He thinks this mode of aiding delivery is harmless, and combines the advantages of expectant with those of active treatment; and that it might be used in all cases of

delayed entry of the head into the brim, as soon as the os is fully dilated and the head has begun to mould. It is not of use so long as the cervix offers any resistance to the advance of the head. But in contracted pelvis the cervix may be fully dilated, and yet not retracted over the head. In such cases expression is suitable.

3. *The management of occipito-posterior and face presentations.*—The following two papers are eminently practical:—

Bataillard (*Annales de Gyn.*, 1889, vol. ii., p. 99) finds that out of 400 cases of occipito-posterior presentation, 353 ended spontaneously by rotation of the occiput to the front. The duration of labour was longer in primiparæ when the occiput was behind than when it was in front, by about two hours in cases in which the children weighed between 5 and 6 lbs., and by three and a-half hours with children from 6 to 7 lbs. in weight. In multiparæ the difference was not so great. In only six cases out of 400 was the head spontaneously born with forehead forwards. The mode of treatment which he advises is the forceps. He says, "The time for intervention having arrived, the hand introduced into the sacral concavity to guide the first blade of the forceps has always either noticed or obtained *volens volens*, consciously or unconsciously, in every case without effort, the reduction of the occipito-posterior position into a transverse position, if not into an occipito-anterior." In applying the forceps, he says the whole hand should be introduced into the sacral concavity until the posterior ear can be felt. Dr. Bataillard's treatment thus appears to be practically manual rotation, followed by forceps; and his injunctions add force to what has been said in former "Year-Books" as to the ease with which reduction can be effected.

Laurens (*Archives de Toccol.*, Dec., 1889) recommends for face presentations the following manœuvre, devised by Pinard:—Before engagement of the face in the pelvis, with two fingers or the hand in the vagina, the anterior fontanelle is pressed from below upwards. The other hand presses on the occiput through the abdominal wall. The direction of the pressure should depend upon the position of the head. The object is to flex the head. If the face is engaged in the pelvis this manœuvre cannot be carried out.

4. *Forceps delivery.*—I quote two papers, the first a valuable experimental research, the second a sample of a very common type of paper.

Cohnstein (*Arch. für Gyn.*, Bd. xxxvi.) discusses a statement often given as a reason against trying to deliver with forceps

when the head is above the brim. It is said (and the statement dates from Baudelocque) that when the head is compressed in its long diameter its transverse measurements are increased. Cohnstein has made experiments to see if this is so. He quotes similar experiments made by Dr. Milne Murray, of Edinburgh, and measurements given by Baudelocque himself. The general result is that in three-quarters of the cases compression of the head in the long diameter does not produce increase in the transverse measurement; and that in the remaining quarter, in which there is some increase, it is very slight, and does not approach the diminution effected in the long diameter.

Dr. T. E. Taylor (*Amer. Journ. of Obst.*, Sept., 1890) writes in favour of the more frequent use of forceps for delivery. He adduces the usual arguments, and calls in to fortify his position the experience of Dr. Johnstone, of the Rotunda Hospital, Dublin. He does not mention, nor appear to have seen, Dr. George Roper's analysis of Dr. Johnstone's figures. Dr. Roper showed that Dr. Johnstone's results were really one of the most complete demonstrations ever published of the bad effects of the too frequent, and more especially the too early, application of forceps. The effect of thus applying forceps during the first stage of labour was to double the maternal mortality and slightly increase the infantile mortality. Dr. Johnstone's figures, therefore, properly interpreted, are far from supporting Dr. Taylor's contention.

5. *The treatment of labour protracted by resistance of the soft parts.*—In normal labour there is no resistance from the bones, and therefore the whole task of the uterus and auxiliary muscles is to overcome the resistance of the soft parts. Protraction of labour, normal in every respect except as to length, means weak pains. Cases calling for treatment such as that recommended in the following paper are exceedingly rare.

Dührssen (*Arch. für Gyn.*, Bd. xxxvii.) writes a long paper on the value of incision of the cervix uteri of the vagina and the perineum in midwifery. Although it appears to me that he rides this hobby rather hard, still some of his conclusions are evidently sound and useful. Incision of the os uteri cannot be of use until the cervical canal has been opened up. Many slight incisions are indicated in cases of atresia or cicatricial contraction of the os uteri. If, in spite of pains, dilatation comes to a standstill by reason of rigidity of the os, chloroform is called for, and incision is only needed in cases of long delay after rupture of the membranes. In cases in which speedy delivery is called for, and the cervix uteri will not dilate, two or three incisions into the cervix, one at each side, and, if necessary, one behind, will rapidly

bring about its full dilatation. If, after incision of the cervix, still the head does not advance, then lateral incisions made into the vagina and perineum, about 4 c.m. in length and 2 to 3 c.m. deep, will completely remove the resistance of the soft parts. Antiseptic precautions should never be omitted. There is not often much bleeding. If there be, it is arrested during delivery by the pressure of the child, and can afterwards be stopped, and union of the divided tissues procured by sutures. Among the conditions which may call for this surgical method of delivery, Dr. Dürrsen specifies rigidity of soft parts in elderly primiparæ; rigidity of the cervix from premature rupture of membranes; prolapse of the cord in primiparæ; the necessity for rapid extraction, to save the child's life, after turning; vaginismus; the kyphotic pelvis. He looks upon these incisions, if proper precautions before and after be taken, as quite free from danger.

6. *The extraction of the after-coming head.*—Eisenhart (*Arch. für Gyn.*, Bd. xxxvi.) details the results of 50 cases of head-last labours, in which the head was delivered by the method which he names, after those who have recommended it, the Wigand-Martin-Winckel method. This consists in combining external pressure with grasping the lower jaw between the finger and thumb, flexing it and rotating the head if necessary, but not trying to pull down the head, the advance of which is aided solely by the pressure of the hand on the uterus. The author looks upon this method as a distinct step in advance, saving the child from asphyxia and from injury, and conducing to the protection of the mother from hæmorrhage and puerperal disease. The statistics which he gives are very good.

B.—CÆSAREAN SECTION.—The great improvement effected in recent times in this operation has caused great interest to be taken in it, and publications about it to be numerous. I only notice a very few of those that have appeared, choosing those that present either some point of interest or novelty, or deserve attention from the eminence of their authors.

Sänger (*Cent. für Gyn.*, 1890) reviews the whole subject of Cæsarean section. The essential points in the *technique* are, in his judgment, asepsis and the uterine suture. Bleeding from the incision can always be controlled by properly applied suture. The only other kind of hæmorrhage that can follow Cæsarean section is that from uterine atony. This is not commoner after Cæsarean section than after natural labour, and often is preventable. The uterus has been amputated after Cæsarean section because it did not contract well, and hæmorrhage was feared.

Sänger thinks this can hardly ever be necessary. The ordinary means for the arrest of hæmorrhage can be applied just as well to a uterus that has been properly sutured as to an uninjured uterus. If the placenta be implanted on the front of the uterus (an event which he does not think can in any way be previously ascertained), although the bleeding is greater, it can be controlled. Stopping hæmorrhage is not the same thing as avoiding it. The elastic band prevents hæmorrhage at the time, and gives us the advantage of operating without bleeding; but it is very questionable whether such pressure, exerted on an organ consisting entirely of muscular and vascular tissue, does not favour the occurrence of uterine atony. Its effect in this way will depend on the degree and duration of the pressure exerted. If this be slight and for a short time only, harm is not likely; but it is not always practicable to thus regulate compression. Therefore Sängér prefers pressure on the uterus made by the hands of a trustworthy assistant. This pressure can be made on the bleeding spots, and can be relaxed when the uterus contracts; and it undoubtedly favours subsequent good uterine contraction. A serviette may be passed round the cervix uteri, and pulled tight; the pressure of this is more diffused, and therefore less injurious, than that of the india-rubber band; moreover, it soaks up blood that would otherwise trickle down into the belly. Other important aids to the prevention of bleeding are rapid operating, good assistants, complete detachment of the entire placenta in one piece, frequent kneading of the uterus during suturing, large and frequent injections of ergotin. Sängér strongly disapproves of operating during pregnancy before labour has begun. Passing over Dr. Sängér's views as to antiseptics, we come to the question of the uterine suture—in his view, the most important point. Sängér claims that, until his publications on the subject, no trustworthy mode of uterine suture had been devised. He criticises the various modifications of his mode of suture that have been suggested. The application of two or three rows of suture, the innermost sunk in the wound, after the manner of Schröder (*étage-naht*), he rejects absolutely. The continuous suture (advocated by Veit) he disapproves of for the deep suture, on the ground that it does not ensure parallelism of the wound margins; but he thinks it less open to objection for the superficial sutures. He still prefers the double series of interrupted sutures—a deep row, not including decidua, but entering the muscular tissue close to the decidua, and a superficial series. The deep sutures should be placed 1 cm. to 1.5 cm. from one another (about $\frac{1}{2}$ inch), and, upon an average, about two superficial ones between each pair of

deep ones. He has given up the resection of a wedge of muscular tissue, but now makes each suture twice pass through the serous membrane, after the manner of Lembert. In reply to Fritsch and others, who point to successful cases in which the only suture used was a single row of uterine sutures put in through the decidua, and without care to fold in the serous membrane, Säger says that what has been sufficient for some cases is not necessarily the best. While Säger thinks it better not to include the decidua, yet he thinks that this point is of less importance than the accurate apposition of the peritoneal surfaces by a "sero-serous" suture. He criticises the case of Leopold (*infra*). He does not think that the patient could properly be said to have died from hæmorrhage, seeing that she survived five days. He thinks that the blood found in the peritoneum may have come from a stitch-hole; and he does not regard Leopold's method of "superficial" suture, viz., sutures including the muscular tissue to the depth of .5 cm. ($\frac{1}{4}$ inch) as a genuine sero-serous suture. Säger prefers silk as a suture material. If silver be used, the ends are apt to give trouble. Chromicised gut is too difficult of absorption. Soft catgut cannot be relied upon. The knots and free ends should not be allowed to project more than can be helped, lest they should favour the production of adhesions to neighbouring organs. He rightly says, that if Cæsarean section is ever to become a frequent operation, we must recommend the method which gives the greatest possible security.

Grandin (*Amer. Journ. of Obst.*, 1890, p. 185), with happy confidence, says that Cæsarean section is one of the simplest operations in midwifery, that hardly any anatomical knowledge is required; the operator need only know how to suture the uterus, and that he can learn from books in a few minutes.

Dr. Paul Ruge (*Zeit. für Geb. und Gyn.*, Bd. xx.), on the other hand, after reporting a successful case of Cæsarean section, speaks very strongly on the position of this operation. Now that it is so frequently urged, when not absolutely necessary from the point of view of the mother, Dr. Ruge's words are very important. He says *it still remains a very dangerous operation*. Teachers should not describe it as easy and simple, but insist on its gravity, and not allow the belief to spring up that it is an operation free from risk. It cannot be compared with ovariectomy, for in it conditions come into operation which make *the prognosis much worse than that of a simple ovariectomy*. Asepsis being taken for granted, there is the risk of atony of the uterus, the effect of uterine contractions on the healing of the wound, possibly tearing it open; the interference with the natural process of arrest of hæmorrhage by thrombosis,

especially if the placenta be inserted on the anterior wall; and the risks arising from the presence of the lochia in the uterus. For this reason he thinks the time has not come, and possibly may never come, when Cæsarean section should be preferred in cases in which delivery in another way is practicable. The great point in the operation is the uterine suture. The margins of the wound ought to be brought together with as much care and as nicely as in a plastic operation. The best method, he thinks, is the continuous catgut suture, aided by deep silk sutures for security and to take tension off the catgut.

Mr. Lawson Tait (*Brit. Med. Journ.*, 1890, vol. i., p. 657) proposes to substitute Porro's operation for the induction of labour, and craniotomy, version, and evisceration, and to do it also in placenta prævia. In supporting this extraordinary proposal, he says that the mortality of the induction of labour is from 5 to 50 per cent.; that of the simple application of long forceps, 15 per cent.; that of craniotomy, at least 20 per cent.; that of placenta prævia, "terribly high;" of Cæsarean section, 90 or 95 per cent.; while that of Porro's operation need not exceed 5 or 6 per cent. It is scarcely necessary to point out how ludicrously inaccurate these figures are. They are in some way got from old writers who practised before the days of antiseptics. With proper selection of cases, antiseptic precautions, timely and skilful operation, the maternal mortality neither of premature labour nor craniotomy ought to be larger than that of natural labour, nor is it, when these conditions are complied with. That of forceps and turning may be a little greater, but not much. That of placenta prævia, with proper treatment, does not exceed 5 per cent. The mortality of Cæsarean section, since Säger's publication, has been far below 90 per cent.; while that of Porro's operation has not yet been brought much, if at all, below 50 per cent. It is true that Mr. Tait says that he is not prepared to accept the verdict of skilled obstetricians, for the reason that 90 per cent. of men who practise midwifery are not skilled obstetricians. But the 5 or 6 per cent. mortality of Porro's operation, which Mr. Tait expects in the future, can only be realised (assuming that the profession generally follows his teaching) if those whom he says are not and cannot be skilled obstetricians nevertheless become skilled abdominal surgeons. If one operation is to be fairly compared with another, it must be assumed that each is skilfully performed.

Leopold (*Arch. für Gyn.*, Bd. xxxiv.) contributes an important case of Cæsarean section which ended fatally on the fifth day from hæmorrhage into the peritoneal cavity, and resulting peritonitis. The hæmorrhage came from the wound, between two

of the sutures. At this point, while the inner muscular bundles were united, some of the outer muscular bundles were retracted, leaving a space between them, into which bleeding had occurred. The author says that on relating this case at a congress of gynecologists, similar but unpublished cases were mentioned by others. The lesson that he draws from the case is to make the uterine wound no larger than is absolutely necessary, to take great care to draw all sutures equally tight, to use both deep and superficial sutures, and to let the latter go at least through half the thickness of the muscular wall. Leopold concludes with what he thinks a necessary reminder, that Cæsarean section is far more dangerous than delivery by perforation. (*See Säger's remarks supra.*)

Fritsch (*Cent. für Gyn.*, Mar. 13, 1890) criticises Leopold's case. He prefers one set of uterine stitches. Leopold's case, he thinks, proves that if the deep stitches are not well made, superficial sutures will not prevent bleeding; and if the deep sutures are well placed and hold, there will not be bleeding, and superficial sutures are superfluous. He points out that Leopold's superficial stitches, which include $\frac{1}{2}$ inch of muscular tissue, are not the same thing as the sero-serous suture advocated by Säger, who picks up as little muscular tissue as possible with the superficial stitches. If $\frac{1}{2}$ inch of muscular tissue be included, the peritoneum cannot be pulled over the subjacent tissue and folded in as it ought to be. The included muscular tissue presses like a wedge into the wound, crumples the edges, and leaves hollows between the crumplings in which immediate union does not take place, and blood may lodge.

Münchmeyer (*Arch. für Gyn.*, Bd. xxxvii.) recommends catgut treated with chromic acid, after the method of Mikulicz; that is, soaked for five hours in the acid. He describes the condition of the uterus in a patient on whom Cæsarean section was performed in February, and who died in October from tubercular meningitis. The operation wound had been sutured with silk and with chromicised gut. The silk had been partly absorbed; the gut sutures were practically unaltered and surrounded with connective tissue rich in nuclei.

Hertsch (*Arch. für Gyn.*, Bd. xxxvii.) reports seven cases of Cæsarean section, one of them being the fourth case on record of repeated Cæsarean section in the same patient. All recovered. He prefers juniper-oil catgut as the suture material. The deep suture in these cases included the decidua, but they were supplemented by superficial ones, which brought into contact the peritoneal edges.

Murdoch Cameron (*Brit. Med. Journ.* 1890, vol. i., p. 583) relates a successful case of Cæsarean section. The uterus was not turned out of the abdomen, as Dr. Cameron thinks that prolonging the incision adds to the risk. The india-rubber ligature to the cervix was not used, and there was no considerable hæmorrhage. In order to sterilise the patient, the Fallopian tubes were tied with silk. The sutures did not include the endometrium.

Stopilinsky (*Cent. für Gyn.*, 1890, S. 627) has made experiments on a cat and a dog, one horn being encircled with the ligature, the other not, to see whether the constriction of the neck of the uterus by an elastic ligature impairs its contractility or not. He finds that it does. He therefore thinks that in Cæsarean section the india-rubber should not be applied till the child and placenta have been extracted, and then only if the uterus relaxes while the stitches are being put in.

Dr. Cullingworth (*Trans. Obst. Soc.*, Lond., 1890, p. 135) showed a uterus removed by Porro's operation; the point of interest was that the operation intended to have been performed was the ordinary Cæsarean section, but after the introduction of the uterine sutures, persistent hæmorrhage from a divided sinus made it necessary to remove the uterus. Both mother and child were saved.

Zweifel (*Cent. für Gyn.*, 1890, No. 2, S. 25) relates a case of Porro's operation in which the stump was treated according to the method described by him in his handbook, and which is briefly this: "After opening the belly, the uterus is turned out entire, the broad ligaments then tied in three parts, and further secured by pressure forceps on the uterine side of the ligatures, and then cut through up to the cervix—an india-rubber ligature then put round the cervix; next the uterus opened and emptied, with every care to prevent the entry of foul matters into the peritoneal cavity, then the body of the uterus cut away, the cervical canal disinfected by washing out with sublimate, and subsequent burning with the actual cautery. Now the burnt surface of the stump was cut out in a funnel shape, the india-rubber ligature removed, and the peritoneal surface of the stump folded in and sutured together, muscular tissue being cut away as freely as necessary, to allow the serous surfaces to come together, then the stump of the uterus and the broad ligaments were well dusted with iodoform, and the abdominal wall closed. The patient recovered, notwithstanding suppuration and discharge of pus through the wound and through the bladder. Febrile symptoms were present at the time of operation."

Porro's operation—**Beaucamp** (*Arch. für Gyn.*, Bd. xxxvi.) describes two cases in which he performed Porro's operation with

a modification introduced by Frank. The stump was treated as follows: The uterus was amputated about two inches above the internal os by a cut sloping downwards from the serous covering to the decidua. Silk sutures were put in through the serous membrane, muscular wall, and decidua, and so tied that the outer part of the uterine wall was folded over towards the decidua. Twelve such stitches were put in. The ends were left long, and with forceps were drawn down into the vagina; thus the upper part of the stump was inverted into the lower. To secure it in this position, two thick catgut sutures were put across the funnel formed by the inverted serous membrane, and then the pelvic peritoneum was united transversely along the whole pelvis over the inverted stump of cervix; the peritoneum was thus perfectly closed. An iodoform gauze plug was put in the vagina. Both cases did well.

Dr. Howard A. Kelly contributes three remarkable cases of Cæsarean section (*Amer. Journ. of Obst.*, March, 1890). In one of them physometra developed, both uterine and abdominal incisions broke open, and there was free discharge and communication between the uterus and the outside through the abdomen, the uterus having become adherent to the abdominal wall. The patient recovered. The second case, done for pelvic deformity, recovered, and had a living child afterwards *per vias naturales*.

7. The third stage of labour.

1. I quote first two papers illustrating *the causation of placental adhesion and retention*.

Cohnstein (*Arch. für Gyn.*, Bd. xxxvi.) gives a useful summary and analysis of the literature of adherent placenta. Our knowledge of the pathology of placental adhesions is founded on a very few observations, so few as not to exclude the probability that the association of the phenomena, occurring together and assumed to be due to a common cause, may have been only fortuitous. This remark applies, not only to placental adhesions, but to other supposed effects of decidual endometritis. But still, imperfect as the proof may be, speculations based on some evidence are better than absolute ignorance. I therefore give the conclusions pointed to by the authors whose researches Cohnstein has collated. Decidual endometritis offers the best explanation (1) of the occurrence of placental adhesion in women who have aborted and quickly become pregnant again; (2) of the predisposition of certain women to adherent placenta, and, by analogy, to habitual abortion; (3) of the alternation of abortion, placenta prævia, placenta marginata, and placental adhesions in the same patient; (4) of the occurrence of functional disturbance of the uterus, weakness of the pains, and hour-glass contraction of

uterus, (5) of persistent circumscribed pain in the womb and lumbar region during pregnancy, these two latter effects being due to the irritation of the uterine nerves by the inflamed mucous membrane. The way to prevent adherent placenta, if these conclusions be true, is to cure chronic endometritis.

Lesueur (*Nouvelles Archives d'Obst. et de Gyn.*, February, 1890, suppl., p. 58) relates a case in which, after delivery of a decomposing child, the placenta could not be extracted on account of a fibroid, which blocked the cervical canal, and round which the uterus had contracted. Seven days after delivery the mass was driven down into the cervix, and was extracted. Behind it the placenta was found adherent, and was easily removed. Antiseptic precautions were diligently used, and the patient did well.

2. *The treatment of post-partum hæmorrhage by plugging the uterus with gauze*, introduced by Dührssen in 1887, was noticed in the "Year-Book" for 1888; and extensive testimony by other German obstetricians for and against it was quoted in the "Year-Book" of last year. It has now spread to other parts of Europe and to America. I quote a criticism from Germany, with Dührssen's reply, expressions of opinion from Holland and America, and an important case from a Russian observer, showing a possible danger attendant on this treatment.

Graefe (*Berl. klin. Woch.*, 1889, No. 41) sums up the experiences of a large number of obstetricians in the use of plugging the uterus with iodoform gauze for post-partum hæmorrhage. He criticises recorded cases, and shows that most of them were cases in which the ordinary means of arresting hæmorrhage had not been fully tried before the plugging, and in which, therefore, it cannot be said that they had failed. He picks out one case in which the usual means had actually been tried and failed, and the gauze plugging failed also. The plugging is, therefore, not an infallible remedy against post-partum hæmorrhage. He gives also evidence to show that even if the gauze plugging produces uterine contraction and arrest of hæmorrhage, it is not always the case that uterine contraction is persistent. The uterus must be as diligently watched after the plugging as before it. He thinks the gauze plugging is a means not inferior to friction, ergot, or hot and cold water injection, as a means of stopping post-partum hæmorrhage, and that it may even sometimes succeed when these have failed; but it is not a means that can be relied on in all cases of uterine atony.

Dürrssen (*Berl. klin. Woch.*, 1889, No. 44), in reply to Graefe, says that 79 cases have now been published, from different sources, in which the gauze plugging has been used. It acts in two ways.

It excites energetic and continuous uterine contractions, and it presses on the bleeding part, just like a plug in any other bleeding cavity. The case in which it failed he thinks was not one of simple atony, but one of hæmorrhage from a tear in the cervix. The case in which contraction was not persistent he thinks one in which not enough gauze was used, so that cervix and vagina were not tightly filled. The gauze plugging has not failed in the cases in which it was properly applied.

Schoumman (*Nouv. Arch. d'Obst. et de Gyn.*, Mai, 1890, suppl., p. 234) has come to the following conclusions as to the treatment of post-partum hæmorrhage by plugging:—1. Plugging of the uterus is less dangerous, easier to do, and more effective than all other procedures in atonic uterine hæmorrhage. 2. It is not dangerous when practised with antiseptic precautions. 3. Experience up till now shows that iodoform gauze is the only material which ought to be used in such cases.

Elsner (*Amer. Journ. of Obst.*, September, 1890) writes strongly in favour of the treatment of post-partum hæmorrhage by plugging the uterus with iodoform gauze. His paper contains no account of any case, or mention of the amount of experience he has had with it, nor does he advance any argument in its favour other than those which have been put forward in Germany. But as an independent testimony in favour of this mode of treatment it must be taken for what it is worth. Tuttle (*Amer. Journ. of Obst.*, 1889, p. 838) reports two cases of uterine hæmorrhage treated by plugging the uterus with iodoform gauze. He regards it as a "safe and wise procedure." In the discussion which followed his paper (read before the Obst. Soc. of New York) the practice was approved by most speakers, but not by all. Dr. Murray "could not conceive how tamponing the uterus with iodoform gauze after delivery at full term can stop hæmorrhage. Many patients suffering from post-partum hæmorrhage would die before the gauze was introduced."

Vavra (*Cent. für Gyn.*, Nov. 1., 1890, S. 20) describes a case of placenta prævia followed by post-partum hæmorrhage from uterine atony, which was treated by plugging the uterus with iodoform gauze. After the insertion of a few strips of gauze, there came sudden cyanosis, interrupted breathing, and death. The autopsy showed death to have taken place from the entrance of air into the veins.

The next communication I refer to mentions a method of treatment which is new and original.

3. Kochs (*Cent. für Gyn.*, 1890, S. 353) suggests a *mode of treatment of post-partum hæmorrhage* which is at least novel. It

is to invert the uterus, and put an india-rubber band round the neck of the inverted part. He reports a case in which he did this, with the result of arresting the hæmorrhage. Six hours afterwards he took off the constricting band, reduced the inversion, gave ergot, and kneaded the uterus to ensure contraction. No further hæmorrhage took place, and the patient did well.

4. The subject of *transfusion* must always keenly interest obstetricians, for in the face of imminent death from post-partum hæmorrhage they have to do it. Patients may die from anæmia after hæmorrhage has been stopped. The two following communications, therefore, may be said to bear directly on the treatment of post-partum hæmorrhage:—

Dr. William Hunter (*Brit. Med. Journ.*, vol. ii., 1889) publishes three valuable lectures on transfusion. His conclusions are as follows:—(1) Transfused blood possesses no nutritive value. Hence transfusion is perfectly useless in the anæmia which accompanies wasting diseases. (2) If the condition to be met is a want of red corpuscles, or an incapacity on the part of those already present to carry on their functions, then transfusion of blood may possibly be of value. But there is scarcely a single condition of the blood in which the want of red corpuscles is a source of urgent danger. After the greatest losses of blood in animals a sufficient number of red corpuscles always remains in the circulation to carry on respiration, provided that the circulation is maintained. In man the loss of blood can never be so great as in animals, because syncope occurs earlier. Transfusion of blood, therefore, is never required for the purpose of supplying red corpuscles to carry on respiration after sudden loss of blood in a patient previously healthy. The immediate source of danger in such cases is not the want of red corpuscles, but the disturbance of the relation between the vascular system and its contents. There is no condition in which transfusion of blood is theoretically more indicated than in chlorosis. But we can readily combat the anæmia of chlorosis without having resort to transfusion. (3) In anæmia after severe hæmorrhage, our object is not so much to relieve any passing danger arising from insufficient bulk of fluid or want of red corpuscles, as to stimulate blood formation. If transfusion be really of any value, it must be by stimulating blood formation. In animals the subsequent recovery after loss of blood is certainly not accelerated by transfusion of blood, but in most cases is actually retarded. The recovery is effected with greater rapidity when simple saline solution (3 per cent. solution of common salt) is injected than when blood is transfused. (4) If the condition to be met in

transfusing blood is a threatened failure of circulation as the result of sudden loss of blood, then it is unnecessary to have recourse to blood transfusion, as infusion of any neutral saline meets equally well, or better, all the indications. The value possessed by transfused blood in such cases is almost solely in virtue of its physical properties, chiefly its volume. Bulk for bulk, pure or defibrinated blood must possess certain advantages over neutral saline solutions free from organic constituents. These advantages, however, are more than neutralised by the other and still greater disadvantages, viz. :—(1) The difficulty of obtaining blood in sufficient quantity or with sufficient rapidity as compared with the ease with which simple saline solutions can be prepared; (2) the danger attending the transfusion of blood, compared with the absolute freedom from danger possessed by solution; and (3) the doubtful value of transfusion, whether hæmogenic or physical, when compared with the saline solution. For practical purposes all the advantages to be gained by transfusion may be equally well and more readily obtained by infusion of a neutral saline, such as $\frac{1}{4}$ per cent. of common salt (about 1 drachm to the pint). With regard to its performance, the simpler the instruments used—a simple glass cannula with a piece of india-rubber attached, and a clean syringe—the more easily will this infusion be effected, and the less likelihood will there be of the injection of air, a source of danger which with a little care can be altogether avoided. The temperature of the solution should never rise above that of the body. In no circumstances is transfusion of milk, or of other mixtures possessing what are supposed to be nutritive properties, ever indicated. They possess no value not possessed by an equal bulk of saline solution.

Dr. Matthews Duncan (*Trans. Obst. Soc.*, London, 1890, p. 5) showed to the Obstetrical Society Münchmeyer's Transfusion apparatus. In the words of the President (Dr. Galabin), "The interest belongs not merely to the actual instrument, but to the fact that anyone can easily improvise an apparatus for carrying out this method, which has been practised to a considerable extent in Germany and elsewhere, and which is alleged to give results quite as great as those of an intra-venous injection of saline fluid. All that is wanted is an aspirator needle (sterilised by the flame of a spirit lamp), a piece of elastic tubing, and a large funnel. An antiseptic solution is first passed through the apparatus, and then the saline solution" [a teaspoonful of common salt in a pint of water] "is injected into the cellular tissue" [between the scapulæ being the best place] "by the force of gravity. It is diffused in that tissue, if necessary, by massage;

and the flow can be accelerated by running the oiled finger and thumb down the outside of the tube." One, two, or three pints may be injected.

8. The puerperal state.

The two following papers deal with small but not unimportant details in the management of childbed :—

1. Dr. Herman (*Trans. Obst. Soc.*, London, 1890) contributes an investigation into *the effect of the binder* after labour. Four uses are ascribed to it :—(1) That of giving comfort ; (2) that of preventing post-partum hæmorrhage ; (3) that of keeping the waist slender ; (4) that of preventing pendulous belly. The first use, that of giving comfort, Dr. Herman did not question ; and he thought that was a sufficient reason for using it. As to the second use, that of preventing hæmorrhage and other injurious effects from the sudden emptying of the uterus, he pointed out that the binder was not usually applied till all danger of this kind had passed. He showed by measurements that a binder of the ordinary kind had no effect on the circumference of the chest and abdomen, although he did not doubt that deformity might be produced and maintained by compression with unyielding straps and buckles. Lastly, the belly could not be pendulous while the patient was lying in bed ; and it was only during this time that the binder was worn.

2. Cullingworth (*Brit. Med. Journ.*, Aug. 17, 1889) urges the following *subsidiary points* as being very important in *securing antisepsis* (or rather asepsis) in midwifery :—First : The undesirability of frequent vaginal examinations during labour, and especially during the first stage ; every examination is a possible means of infection, therefore the fewer they are the better. Second : The thorough emptying of the uterus after labour and abortion ; retained secundines form a soil in which microbes can develop. Third : That the patient occasionally sit up in bed for a few minutes at a time, as early as the second or third day ; this prevents lochia from stagnating, the stools and urine from being too long retained, and promotes the contraction of the uterus and the abdominal muscles. Fourth : The prompt stitching up of perineal lacerations ; an open wound offers peculiar facilities for septic absorption. Fifth : The substitution for the napkins usually employed of pads of material that can be burnt immediately after use, gauze bags of wood wool being the best. Lastly : The washing of the child's eyes with a 1 in 3000 solution of corrosive sublimate ; and, in cases in which the mother is known to have suffered before labour from a purulent vaginal discharge, the dropping into the eyes, by the medical attendant himself, of

a 2 per cent. solution of nitrate of silver; also antiseptic cleanliness in the dressing of the umbilical cord, a square of dry antiseptic gauze and dusting with starch-powder being the best thing.

3. The question of *antiseptics in midwifery* was one of those discussed at the International Medical Congress at Berlin (*Cent. für Gyn., Beilage*, 1890). Galabin thought that in normal cases a single post-partum douche of 1 in 2000 sublimate solution was sufficient, but that during the puerperium 2 to 2½ per cent. carbolic irrigation should be used. Slaviansky said that in Russian maternities antiseptics is universally employed, with the result that puerperal morbidity and mortality have decreased year by year. Stadfeldt thought that midwives should be furnished with antiseptics on demand and gratuitously, especially carbolic acid. Fritsch said that when antiseptics were first introduced into midwifery too much was done. To-day we are all convinced, that if a patient is healthy she must be left alone—at most, the external genitals are cleansed. Döderlein thought that a final decision was not yet possible whether internal disinfection is necessary or not.

The papers which I next refer to deal with the topics raised in this discussion, but with more elaboration:—

Bokelmann (*Zeit. für Geb. und Gyn.*, Bd. xvii., S. 341), in a paper read before the Berlin Obstetrical Society, defends the two following propositions:—(1) That the chief point of antiseptics in the lying-in room consists in disinfection of the hands and instruments of the accoucheur. (2) That a healthy lying-in woman is *à priori* to be regarded as aseptic, and that disinfection of the genital canal is not necessary. He bases his views mainly on two facts—(a) the comparative immunity from febrile disease of women who are delivered without examination; (b) the failure of bacteriologists to find pathogenic organisms in the lochia. If the latter be accepted, then clearly the use of elaborate manipulations to disinfect the vagina and uterus is not only unnecessary, but injurious; it is, Dr. Bokelmann says, part of a “furor antisepticus” which is the greatest backward step since Semmelweis. And if the genital canal swarms with pathogenic germs, what, he asks, is the use of purification of the accoucheur's hands? If disinfection of the vaginal canal be not necessary, the process is injurious in three ways—(1) it robs the mucous membrane of the mucus which should protect it; (2) it makes labour lingering; (3) it is disagreeable to the patient. Dr. Bokelmann does not object to washing of the external genitals, nor to disinfection of the genital tract, in cases in which there is

any special reason to anticipate infection. All the speakers in the discussion agreed in the main with Dr. Bokelmann.

4. Thomen (*Arch. für Gyn.*, Bd. xxxvi.) has anew investigated the presence of *bacteria in the lochia*. Although in details his results are not quite the same as those of Döderlein, Van Ott, and Steffek, yet the researches of these different observers and Thomen's harmonise in showing this—that micro-organisms abound in the lower part of the vagina; that they are few or absent in the upper part and in the uterus; and that it is exceedingly difficult or impossible to get rid of them by syringing the vagina with germicide solutions.

5. Szabo (*Arch. für Gyn.*, Bd. xxxvi.) discusses at great length the question *whether there is such a thing as "self-infection"* (the "autogenetic" puerperal fever of some English text-books).

He considers three lines of evidence:—1. Statistics; 2. The observation of lying-in women who are febrile; and 3. Cases of labour completed without examination; and he endeavours to answer one practical question—Is vaginal douching preliminary to labour necessary to prevent self-infection?

1. *Statistics*.—These show (1) a steady diminution in the amount of puerperal illness since the introduction of antiseptics. Since the introduction of sublimate as a disinfectant into the Budapest lying-in hospital, under the care of Prof. Kézmárszky, the proportion of cases in which the temperature never exceeded 38.2° C. (100.7° F.) has been 80 per cent., while before the introduction of antiseptics it was only 55 per cent. This diminution by the use of external preventive measures shows that the disease, at least in the majority of cases, is due to external causes. (2) Szabo quotes statistics from other sources which agree with his own in showing that in lying-in hospitals used at one time for the instruction of medical students, at another for the instruction of midwives and nurses, the percentage of febrile cases has been larger when students were in attendance than during the vacations, or while midwives were in attendance. If the fever is due to poison brought to the patient, this difference is easily accounted for, but if the cause is developed in the patient's system, it is inexplicable. (3) He adduces statistics which show that the percentage of women passing through the lying-in without febrile symptoms is larger during the students' vacation than during the session. The difference is not great, but any difference is quite inexplicable by the "autogenetic" theory. (4) It is so well-known as scarcely to need proof, that cases of febrile illness in lying-in hospitals often occur in groups, several together. If the illnesses are due to infection brought from outside, such grouping

is what would be expected; but the theory of "self-infection" offers no explanation of it. (5) Szabo's statistics show that when, in the clinic, several women were delivered on the same day, the proportion of these that ran their course without fever was rather less than that of those who were delivered on days in which the pressure upon the staff was less. The difference is very small, but, like the other differences, not explained by self-infection. (6) Better results have been attained with sublimate as a disinfectant, other conditions remaining the same.

2. *Cases of febrile illness during the lying-in.*—Szabo's next line of research is to ascertain, if possible, the cause of fever during the lying-in period. Out of 381 cases, he found that in 277 there was some cause for the fever in the condition of the genital canal, in 54 it was due to the breasts, in 32 to accidental causes, meaning by that the presence of some disease quite unconnected with the genital organs, and in 18 the cause could not be made out. Many cases fell into one of the following categories, which Szabo considers more fully :—(1) Wounds of the external genitals; (2) retained membranes; (3) fever on the first day of the lying-in.

(1) Wounds of the external genitals. Szabo gives figures which support this conclusion: the nearer to the external air are lacerations of the genital canal situated, the more frequent is febrile illness during the lying-in, a fact which speaks in favour, not of self-infection, but of the entry of micro-organisms from without. (2) Retained membranes. Szabo finds this to be the next in frequency among the causes of fever to wounds of the genital canal. During part of the period over which the records analysed by him extend, retention of membranes was treated on the expectant plan, and during part by prompt removal. There were more cases of febrile illness among the cases with retained membranes than among those in whom the membranes were entirely expelled at the time of delivery. If at the first rise of temperature in a case in which membranes were retained, the membranes were promptly removed and the uterus washed out with a disinfectant, the invariable consequence was that the temperature sank to normal. But if this treatment was postponed, its late performance was not followed by cessation of febrile symptoms. Cases in which retained membranes were manually removed at the time of labour, either from vagina or uterus, were as free from fever as those in whom the membranes were naturally completely expelled. But as, unless there was some ground for thinking that membrane was retained, no investigation was made to see whether it was so or not, it is impossible to say that there

were not cases with retained membranes in which the retention was never discovered, and no symptoms occurred. Retention of thickened decidua and of clot, Szabo finds as potent for mischief as retention of chorion or amnion. He remarks on the frequency of thickening of the decidua along with the macerated foetus, and attributes to this the fact that fever in the lying-in is more frequent after delivery of a macerated foetus than after a living one. (We may note in passing that hæmorrhage occurred in about 30 per cent. of cases of retention of membranes.) (3) Fever on the first day of lying-in. Szabo finds that the cases in which there was slight fever on the first day of lying-in were those in which fever was present on subsequent days. If slight fever on the day following delivery were, as some think, due to the muscular exertion of labour, this ought not to make any difference as to the patient's liability to puerperal illness on the subsequent days. That it does is, in Szabo's opinion, evidence that it is not due to physiological processes, but to the entry of germs from without.

3. *Cases of labour completed without examination.*—These comprise three classes. (a) Those delivered before admission. (b) Cases of unusually rapid labour. (c) Cases admitted at a time in which, on account of the previously unhealthy condition of the hospital, vaginal examination during labour was forbidden. Cases in classes *a* and *b* showed about the same percentage of febrile illness as the general run of cases delivered in hospital since the perfecting of the antiseptic measures, viz., about 80 per cent. The causes of fever are pointed out, and the following interesting generalisations appear. The amount of febrile illness among mothers whose children suffered from ophthalmia was not greater than among the general run of cases. Among women suffering from purulent vaginal discharges, and among women who had given birth to syphilitic infants, the amount of puerperal pyrexia was above the average, the fever in the latter case being due to endometritis, ulcers, etc. (c) Before the introduction of sublimate as a disinfectant, at several times, in consequence of the prevalence of puerperal illness in the hospital, vaginal examination of cases, unless for special reasons, was discontinued. The prevalence of disease which called for this measure was generally towards the end of the session. Dr. Szabo asks, why should there be an exceptional number of cases of self-infection at the end of the session? The discontinuance of vaginal examination did not bring about immediate improvement; but this only shows that examination is not the only way in which women are infected. The prevalence of disease was at that time thought possibly due to faulty drainage arrangements. This was put right, but no

alteration in the morbidity followed. Nothing prevented occasional outbreaks of disease but the use of sublimate.

4. *Are vaginal injections before delivery necessary for the prevention of self-infection?*—Szabo has collected statistics from many lying-in hospitals in which disinfection of the vagina before delivery is more or less carefully carried out. He refers to the investigations of Steffek and others ("Year-Book," 1890, p. 246), which show that disinfection of the vagina is very difficult to do thoroughly. He finds that the results in those hospitals in which antiseptic injections before delivery are used are no better than those attained without them. The results in private practice must always be somewhat better than those in hospitals, and those in small hospitals than those in large, from the more numerous possibilities of infection in large hospitals; but with increasing completeness of antiseptic precautions the difference has been reduced, and may be expected to be further reduced. The usefulness of vaginal injections before delivery is theoretically not shown, practically not proved, and such injections may be the means of doing harm, and, therefore, midwives ought not to be taught to give them.

A great contribution to this subject has been brought before the London Obstetrical Society by Boxall; but as its publication is as yet incomplete, I defer notice of it. The following papers deal with the practical aspect of the question:—

5. The question *whether midwives should be authorised to use antiseptics* has recently been discussed, in answer to a question from the Minister of the Interior, by the French Academy of Medicine. A report, in answer to the Minister's inquiry, drawn up by M. Budin, formed the basis of discussion. The following propositions were adopted:—1. It is indispensable to permit midwives to use substances which can prevent the propagation of puerperal disease. This was carried unanimously. 2. For greater simplicity, and to avoid mistakes, midwives should only use one antiseptic, the dose of which should be always the same. Pharmacists should be authorised to deliver to them packets of sublimate composed as follows:—Corrosive sublimate, 25 centigrammes; tartaric acid, 1 gramme; a 5 per cent. alcoholic solution of indigo-carmin, 1 drop. Each such packet should bear a red label marked, "Sublimate, 25 centigrammes, for a litre of water. POISON." This was carried, all voting for it excepting two. 3. Besides, as it is necessary that midwives should have at their disposal an antiseptic with which to lubricate their hands and instruments, pharmacists should also supply them with 30 grammes of vaseline and sublimate, 1 in 1000. This was

carried unanimously. The chief opponents of this report were Guéniot, who urged the danger of sublimate, and the greater safety of carbolic acid; and Charpentier, who wished the choice of the particular antiseptic left to the midwife. All agreed that antiseptics should be obligatory.

Pichevin (*Nouvelles Archives d'Obst. et de Gyn.*, Mai, 1890, p. 281) regards antiseptic douching of the vagina and uterus as indispensable in childbed. But what should be the antiseptic? An antiseptic which can be safely used without the direct supervision of a medical man should possess the following properties:—1. It should give to its solution a colour distinct enough to prevent mistakes. 2. It should be procurable everywhere, even in the smallest shops, and at a moderate price. 3. It should not be poisonous even if absorbed. 4. It should disinfect vagina and uterus, and remove fœtor from the lochia. 5. It should be such as can be injected into the uterus without fear. 6. It should not irritate. The antiseptic which appears to him to best fulfil these requirements is sulphate of copper. He thinks midwives should be authorised to use a 1 per cent. solution of this salt.

Dr. Constant Robert (*Nouv. Arch. d'Obst. et de Gyn.*, Mai, Juin, et Juillet, 1890) says that for two or three years a 1 per cent. solution of sulphate of copper has been used as an antiseptic at the Pau Maternité. There has been no septicæmia, and three severe cases of "puerperal infection" have been cured by it. There have been no symptoms of poisoning, and the attendants have not suffered from sores or eruptions on the hands. He believes that involution of the uterus goes on more rapidly when sulphate of copper solution is used. Dr. Robert adopted this antiseptic at the suggestion of Dr. Charpentier. Sublimate is still used for cleansing floors, instruments, furniture, etc., and for the hands.

6. The next publications I notice deal with the forms of disease included under the term *puerperal fever* and their treatment. Dr. Thursfield's experience confirms the conclusions of Boxall and Meyer ("Year-Book," 1889) as to the effect of infection of the puerpera with scarlatina.

Dr. W. N. Thursfield, writing on *scarlet fever and the puerperal condition* (*Brit. Med. Journal*, vol. i., 1890, p. 75) says that he has personal notes of over twenty instances in which scarlet fever and a confinement have been going on in the same cottage, of ten in the same room, and in every case under conditions in which isolation was impossible. In no single one has the puerpera contracted fatal scarlet fever, though some have passed through an ordinary attack of the disease, and the risk of the incidence

and severity of the disease appears to be precisely what would be anticipated among a similar number of adults under similar conditions of exposure.

The next paper gives an account of a rare form of puerperal disease.

7. Ehrhardt and Favre (*Nouv. Arch. d'Obst. et de Gyn.*, 1890, p. 416) describe an epidemic of *puerperal diphtheria* occurring in the Paris Maternité. It was attributed to the demolition of some water-closets. At the very beginning of these works a woman recently delivered, and placed in a bed near these closets, presented on the vulval and vaginal mucous membrane a yellowish exudation like the false membranes of diphtheria: Other women were soon attacked, and similar cases were seen in another ward in which similar works were in progress. The source and carrier of infection the authors believe to have been the clouds of dust which accompany all works of demolition and masonry. Possibly, they suggest, bacilli, in the pre-antiseptic days when ocular diphtheria was more common than it is now, may have got lodged in the plaster, and then floated out in the air when the brickwork was pulled down. In both wards the patients in the beds nearest these water-closets were the first to be attacked. Patients who had no wound remained free. In less than three weeks thirty-three women presented vulval and vaginal diphtheria. In all the cases on the surface of the genital mucous membrane was a greyish-yellow fibrinous membranous irregular exudation, its colour contrasting sharply with the surrounding redness. These firm and consistent false membranes could only be detached with difficulty in the form of buffy shreds. When scraped off the membrane was reproduced. In many there was exudation on the inner surface of the labia majora, and in these there was enlargement of the inguinal glands. The general condition of the patients was not grave. There were depression, loss of appetite, and a certain amount of pallor. The degree of fever was generally only moderate. The duration of the disease was on the average eight to fifteen days. All the women recovered. By the time the masonry works were finished the epidemic had almost entirely disappeared, but some isolated cases occurred afterwards. There was no puerperal septicæmia; there was no shivering or profuse sweating; lactation was normal; the lochia were neither diminished nor offensive; there was no abdominal tenderness. There were no great oscillations of temperature. In no case was there an abscess, peritonitis, pyæmia, pleurisy, or phlebitis. All the infants remained with their mothers, but none of them suffered in any way except one who got diphtheria of the conjunctiva, but went out

well, without any corneal lesion. The disease was treated with plugs of absorbent cotton wool impregnated with iodoform glycerine, and in the intervals injections of 1 in 5000 sublimate, except in some cases in which there was albuminuria, for whom permanganate of potash was used. The authors were unable to trace the patients, and therefore cannot say whether any of them got diphtheritic paralysis.

8. In last year's "Year-Book" (p. 249) the use of the *curette* in *puerperal endometritis* was referred to. This mode of treatment has continued to attract attention, and the two next papers will help the reader to form an opinion about it.

Braun-Fernwald (*Arch. für Gyn.*, Bd. xxxvii.) writes on scraping out the uterus in *puerperal endometritis*. Out of 7,600 women delivered in the Vienna clinic, in 101 cases the uterus was scraped. Of these, 5 died, 96 recovered. The mortality in the whole 7,600 was at the rate of 59 per cent. The scraping is done as follows. The vagina and external parts are first cleansed with an antiseptic. The duck-bill speculum is used to expose the cervix, which is seized with a volsella. Then the uterus is washed out with an antiseptic fluid. Then the whole inner surface of the uterus is gently scraped with a long, broad, blunt *curette*. Force should not be used, for the uterus is easily perforated. Particular care is taken that the *curette* shall visit every part of the inner surface of the uterus, especially the openings of the tubes. It is quite easy, by the different sensation imparted to the hand using the instrument, to distinguish diseased from healthy parts, and to know when the endometrium has been completely got away. The cervix is scraped as well as the body. Then the uterus is again washed out, to get rid of detached fragments, clot, etc., and after washing out compressed between the hands gently and for some time, to produce and maintain uterine contraction. Then, with curved forceps, a strip of iodoform gauze of the thickness of the finger, soaked in tincture of iodine, is put high into the uterine cavity. Any fissures in the vagina are then painted with tincture of iodine, and the cervix and vagina stuffed with iodoform gauze. The patient is then put back to bed with an ice-bag on the abdomen, and given some brandy. The gauze plugs are removed at the end of 24 hours. The vagina is subsequently daily washed out with an antiseptic solution. The illness for which this treatment was carried out in most cases came on between the second and sixth day of child-bed, the fourth being the most frequent day. The scraping was in two-thirds of the cases done on the second day of the fever, and in most of the remainder either on the first or third day. A few were done later,

even as late as the eighth day. In the great majority of cases the fever had subsided within six days after the scraping. Scraping is indicated in cases of fever in child-bed, due simply to endometritis. These cases are to be recognised by the following features: (1) The onset of the fever early in the lying-in; (2) The deficient involution of the puerperal uterus; (3) The alteration of the lochia, which are of unnatural colour, offensive in smell, and often containing fragments of decomposing tissue. Scraping is contra-indicated if symptoms of general infection are present, such as high fever, prostration, rigors, abdominal pain and distension, vomiting. Chloroform is not necessary.

Chantemesse (*Progrès Médical*, Mars 29 et Mai 10, 1890) gives a very full account of the pathological anatomy of puerperal fever. He says there is no "puerperal fever" in the proper sense of the word, but only infections which attack the puerpera by favour of the uterine wound created by delivery. The streptococcus pyogenes is in the great majority of cases the creator of all the accidents. The treatment consists in (1) washing out the uterus early with a hot solution of 1 to 4000 corrosive sublimate. This must be done early, and be repeated night and morning. If this fail to relieve, then (2) the uterine wall should be scraped with the curette, swabbed with a 10 per cent. chloride of zinc solution, and plugged with a strip of iodoform gauze.

9. *The surgical treatment of puerperal peritonitis.*—Bouilly (*Archives de Tocol.*, Dec., 1889) has treated by laparotomy six cases of puerperal peritonitis. Four were cases of general peritonitis, and all died; one on the second, one on the fourth, one on the sixteenth day, and the other a few hours after the operation, but the latter was almost moribund when the operation was commenced. Two were cases of local peritonitis. In one pus was let out, and the patient was relieved at once, and on the thirteenth day only a small fistula remained. The other patient was so bad that in the morning Dr. Bouilly refused to operate; in the evening he changed his mind, operated, and the patient got quite well. Dr. Bouilly thinks the prognosis much depends upon the distance of the illness from delivery. If only a few hours or days since delivery, the prognosis is almost necessarily fatal. If on the eighth, tenth, or twelfth day of lying-in, there is a great prospect of cure. The operation is simple. An incision of about two inches long is enough. When the peritoneum is opened the nozzle of an irrigator is introduced, and moved about among the bowels, guided by the finger, so as to mechanically detach and bring away false membranes and pus. Boiled water may be used, or 1 in 10,000 sublimate. Abscess cavities should be well washed

out. A drainage-tube and ordinary dressing complete the proceeding.

9. The Infant.

The following papers are all of clinical interest :

1. Dr. P. Straumann (*Zeit. für Geb. und Gyn.*, Bd. xix.) describes *influenza affecting newly-born infants*. In the beginning of 1890, twenty-four women in the Giessen Maternity suffered from this disease ; eight of the children also suffered. The disease began suddenly in previously healthy children, with nasal catarrh, sore throat, conjunctivitis, digestive disturbance, pulmonary affections, in one case definite pneumonia, lowering of temperature, loss of weight. The illness lasted from four to six days. Its epidemic occurrence, and its coincidence with the influenza epidemic, Dr. Straumann thinks justify him in regarding it as influenza.

2. Dr. Ashby (*Brit. Med. Journ.*, 1890, vol. i., p. 281) describes the symptoms of *meningeal hæmorrhage* as they present themselves when this occurs in the newly born, as a result of asphyxia from difficult labour. In the vast majority of cases no symptoms pointing to a surface lesion are present at first ; there is no paresis of the extremities, and frequently no convulsions ; in fact, an extensive meningeal hæmorrhage may be present without any definite symptoms. In some cases facial and other paralysis have been noted. It is only as the child ought to be developing, learning to stand or walk, that the mother notices some backwardness in the use of its limbs, and some waywardness in its mental attainments.

3. Dr. W. G. Macdonald (*Amer. Journ. of Obst.*, 1890, p. 7) relates a case of *congenital umbilical hernia treated by operation* six hours after delivery, with success. He cleared away the amnion and the Whartonian jelly, then incised the peritoneum and examined the contents of the hernia ; adhesions were separated, where necessary the wall of the sac being resected. Adherent omentum was ligatured and removed. A flat sponge was then put in to keep back the bowels, and silk stitches put in ; these should go through and through from side to side, and be put in well back from the border of the wound. He has collected nineteen cases, of which two died. A friend who was helping him suggested that he ought to have removed the vermiform appendix.

4. Dr. Samuel C. Busey (*Amer. Journ. of Obst.*, May, 1890) says that *hæmorrhage from the genital organs in newly-born female children* may be classified into three varieties : One, probably the most frequent, is characterised by periodical recurrence, and the usual outward phenomena of premature puberty. Such cases are examples of precocious menstruation. A second form is

distinguished from the foregoing by the irregular recurrence of the hæmorrhage for a brief period, not extending beyond the twelfth or eighteenth month, and the total absence of any of the usual accompaniments of puberty, such as growth of hair upon the pubes and in the axillæ, and changes in the breasts. The third variety occurs during the puerperal month, with rare exceptions, not later than the twenty-first day, but most frequently in the first six days, and usually subsides spontaneously in a few days, without detriment to the infant. It does not recur. It is known as vulvar or vaginal hæmorrhage; but as yet no one has discovered any bleeding point or surface on the vulva. The post-mortem examinations that have been made point to the mucous lining of the uterine body as the source of the hæmorrhage. Dr. Busey relates a case occurring in a small and feeble child born asphyxiated, with the cord coiled round its neck, and resuscitated, after prolonged efforts, by Schultze's method. The hæmorrhage was first observed on the morning of the fifth day. Two drops of the fluid extract of *hydrastis canadensis* in water every few hours were prescribed. This was continued for thirty-six hours, at the end of which time the hæmorrhage had ceased. The following night there was slight recurrence of hæmorrhage, and the *hydrastis* was resumed, and continued for several days. Dr. Busey is convinced that it had a beneficial effect. Our knowledge of the causes of such hæmorrhage he regards as purely speculative.

DISEASES OF THE SKIN.

BY MALCOLM MORRIS, F.R.C.S.E.,

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THERE has been enormous activity in this branch of medicine during 1890, and in consequence there is some difficulty in selecting from the numerous articles those which are the most practical. Notice, however, must first be made of the various meetings held during the year.

As a result of the International Dermatological Congress held in Paris in 1889, a French Dermatological Society has been formed. The first regular meeting was held at the Hôpital St. Louis in April. The society has been a marked success, and proves a great advantage to strangers visiting Paris who are interested in the subject. There was also about the same time a German Dermatological Congress held at Prague.

The formation of a Dermatological Society has taken place in Vienna, which meets every fourteen days in the lecture room of the dermatological clinique in the General Hospital. Professor Kaposi has been elected president.

The American Dermatological Association held its annual meeting in September, under the presidency of Dr. Morrow. The meeting occupied three days, during which much good work was done. (*See abstract of the Transactions in Journ. Cut. and Gen.-Urin. Dis.*, November, 1890.)

The chief medical event of the past year was the International Congress at Berlin—the largest conference of medical men which has ever taken place. Unfortunately, owing to such an untoward circumstance as meeting in a railway arch, and perhaps other causes, the success of the Dermatological Section of the Congress was not what it ought to have been. The subjects selected for discussion were most suitable, and there were present many of the best-known authorities, and yet, in spite of these facts, the discussions were either half-hearted or altogether unworthy of the occasion. The following is a list of the chief papers:—Questions for discussion: I. "Treatment of the Inflammatory Affections of the Skin" (Lassar). II. "Diagnosis, Prognosis, and Treatment

of Chronic Gonorrhœa in the Male and Female" (Dra. Finger, Sinclair, Jullien, Noeggerath, and Campana). III. "The Nature of Drug Eruptions" (Unna, Colcott Fox, Brooke). IV. "To what Special Conditions is the occurrence of the Tertiary Forms of Syphilis to be ascribed?" V. "The Pathogenesis of Pigmentations" (Caspary, Ehrmann, Jarisch). Amongst the papers read was Mr. Hutchinson's, on "The Causes and Origin of Leprosy," and Dr. Robinson's (New York) on *Xanthoma diabeticorum* and its relations to ordinary Xanthoma.

Another meeting of interest to dermatologists took place in the Dermatological Section of the British Medical Association, held at Birmingham in August, 1890. There were three special subjects selected for discussion, viz., "Alopecia Areata," which was opened by Dr. Crocker; "Vaccination Eruptions," by Mr. Malcolm Morris; "Nature and Treatment of Eczema," by Dr. Unna. All the discussions, which were of a highly practical character, lasted a considerable time, in consequence of many taking part in them. In every way the section was most encouraging, and shows how much greater interest is being taken in the subject than was formerly the case.

The most important work on dermatology published during the past year was Dr. Brocq's "*Traitement des Maladies de la Peau*," Paris (Octave Doin). It is an able exposition of modern French Dermatology, the special feature of the book being the completeness of the parts devoted to therapeutics.

I. Eczema.

A very interesting paper on this subject was read by Dr. Unna at the meeting of the British Medical Association held at Birmingham in August. In it he draws attention to the importance of as correct an appreciation of eczema as possible. It is the "barometer" from which, he says, we can read the exact position of dermatology at any particular period, and he considers that success in the treatment of this affection gives a good standard by which to measure the ability of any given dermatologist.

After admitting the great difficulties in the way of delineating the position of the eczema question at the present time, he proceeds to compare the English views, as expressed in our textbooks, with his own conception of the subject. As he cannot discuss the therapeutics of eczema without considering its pathology, he asks, *What is Eczema?*

We know, he says, from the investigations of Koch, Lister, and Pasteur, that we have to reckon with innumerable organisms, of which many are at war with the human body, but from which

only a small number have the capability of producing disease. Nevertheless, we have reached a point at which we are able to say that the majority of diseases are so produced. What follows is too long for quotation here, but will well repay careful study by those who may not have read this excellent article by one who is a thorough master of the subject. (See *Brit. Journ. of Dermatology*, August, 1890.)

Unna concludes his article by adopting Erasmus Wilson's definition, with certain slight alterations. Wilson's definition was, "Eczema is a chronic inflammation of the skin accompanied by desquamation, exudation, and pruritus;" Unna's, "*a chronic parasitic catarrh of the skin, with desquamation, itching, and the disposition to respond to irritation by exudation and well-marked inflammation.*"

As regards treatment he says, "My contentions in this matter may be stated as follows:—

"1. *The treatment of chronic eczema* may be considered with advantage under two different heads: (a) By the use of anti-parasitic measures the germ itself is attacked; this is the *direct treatment*. (b) On the other hand, by it the epidermis, which is the nutrient soil, becomes less suitable for the growth of the specific germ; this is the *indirect treatment*.

"The ways and means which have empirically proved themselves to be of the greatest service in the treatment of eczema are partly direct, partly indirect in their action, or—and these are the best—they act at the same time directly and indirectly.

"2. *The radical treatment* of eczema aims at the destruction of every single germ in the depths of the epidermis. A disappearance of the eczema efflorescence is by no means equivalent to a thorough cure of the disease, which, however, always attained by the prolonged and continuous use of specific measures.

"3. *There are various chronic eczemas* which may be distinguished with certainty by their clinical symptoms and course. They do not by any means always pass through all the so-called "stages" of eczema, of which we hear so much, but each form has its own type, its own variations, and of course its own specific treatment. As examples, I may quote the eczema of scabies, the seborrhœic eczema, follicular eczema, papular eczema.

"4. As the therapeutics of these etiologically different eczemas are not the same, I will limit myself to special suggestions for that variety which is the most common, viz., the *seborrhœic eczema*. This begins as a desquamative erythema, similar to pityriasis, and continues as such, or develops either into an oozing eczema or into squamous, or crusted psoriasis-like eruptions. When it

becomes vesicular, it is chiefly from the effect of external irritation. For the treatment of this eczema we possess as specifics strong alkalis, several metallic oxides, and the reducing group of medicinal agents. In this series of specific remedies, the most worthy of mention are caustic potash, zinc oxide, lead oxide, mercuric oxide, sulphur, resorcin, pyrogallol, chrysarobin, and the various kinds of tar.

"5. *The choice of the remedy and its form of application* are determined in seborrhœic eczema, as in all forms of eczema, by the *degree of inflammation* which is present. When the inflammation and oozing are pronounced, the milder specifics are indicated, such as zinc oxide, lead oxide, sulphur, resorcin, in the form of powders, lotions, pastes, and glycerine-gelatines. When the inflammation is less and the dryness greater, the stronger specifics, such as chrysarobin, pyrogallol, tar, mercuric oxide, are indicated, especially in the form of salves, salve mulls, plaster mulls, and waterproof dressings.

"6. It may be taken as a general rule that, among the remedies and modes of application, those must be selected for each case which will produce *the most powerful effect on the specific germ* (direct or indirect) *without exciting an artificial inflammation*. A really 'irritating' treatment is not necessary, even in the case of the oldest and driest eczemas; if only provision is made for thinning down the horny layer (an ordinary sequence), the specific agents will have the desired effect, without any irritation whatever. Indeed, an irritating mode of treatment of eczema is only justified on principle, when it is used as a test to spots which are apparently healed, in order to recognise the presence of any surviving germs which they may still contain. This alternation of anti-eczematous and provocative treatment corresponds to Tyndall's interrupted sterilisation.

"7. The only internal remedy which exercises any specific though limited influence on seborrhœic eczema, and especially on its drier forms, is arsenic. All other forms of treatment of the general organism and of other organs which have a reflex association with the skin (such as the bowels, uterus, kidneys), all dietetic cures, all baths (except sublimate baths) may be considered only in so far as they may possibly assist the local treatment of the skin in an indirect way.

"8. In the search for *new specifics* against the various forms of eczema, their harmlessness for the general organism must be taken into consideration, and with regard to the reducing medicinal agents in particular it must be noted whether there is an absence of irritating properties in their oxidation products."

Professor Pick (*Centralblatt f. die gesamte Therapie*, January, 1890, and *Journ. Cut. and Gen.-Urin. Dis.*, April, 1890) at the meeting of the German Dermatological Congress, held at Prague last year, read a paper embodying his views regarding the treatment of eczema.

In the development of the disease one should draw a clear line of distinction between the proper eczematous process and the septic complication called by Hebra eczema impetiginosum.

The indications to be fulfilled by treatment are to protect the skin from external irritation and to prevent local infection.

The following formula, which has been thoroughly tested by Pick, fulfils these indications, besides being quite unirritating :—

R. Gelatinæ albæ	...	...	...	...	30·0
Aquæ dest.	...	...	...	...	q. s.

Macerate for several hours, then liquefy over a water-bath, and evaporate to 75·0 by weight.

Add: Glycerini	...	...	...	...	25·0
Hydrarg. chlor. corros.	...	...	...	...	0·06

The preparation should be applied with a brush, having beforehand been rendered liquid over a water-bath.

It is indicated only in the dry stage of the disease, as moisture prevents it from adhering to the skin.

In the moist stage of eczema, and for the chronic form of the disease, with more or less thickening of the cutis, the salicylic acid and soap plaster fulfils all the indications for a permanent antiseptic application.

The following formula is used by Pick in the preparation of his plaster :—

R. Emplastr. saponat. liquéf.	...	...	...	100·0
Acid. salicylic	...	...	...	5·0.

Mix and spread on linen or cotton cloth.

To increase the adhesive powers of the plaster, twenty per cent. of olive-oil may be added to the above formula, and the amount of the salicylic acid may be increased or diminished according to the amount of infiltration of the skin.

The plaster must be cut into narrow strips and closely applied to the surface, where it may remain undisturbed for several days.

Immediately after its application the patient feels a burning pain, which, however, soon disappears, together with the distressing itching which attends the disease. When much moisture is present, the first dressing may be changed on the third or fourth

day ; the further dressings may remain in place for eight days or longer. It is a good rule not to change the dressing until the patient is again distressed by the itching. As soon as the stage of moisture has passed, one may return again to the gelatin application, or they may be combined, the one to the moist regions, the other to the spots where scaling is present, or where a new outbreak of papules is taking place.

2. Nature and treatment of impetigo.

Brocq's letter to *Journ. of Cut. and Gen.-Urin. Diseases*, Oct., 1890.

—"Dr. W. Dubreuilh has just published in the *Annales de Dermatologie* an article upon the subject. I have already made known to your readers the views of the French school upon these points. We no longer adopt in Paris the opinion of Professor Hardy that impetigo should enter into the category of eczema. For us impetigo is an affection *sui generis*, definitely characterised by its vesico-pustular aspect, by its evolution, by its auto-inoculability, and its non-inoculability to a healthy individual. It sometimes complicates eczema, but it may exist alone and follow its complete evolution as an impetigo without being complicated by an eczematous eruption.

"These ideas, long held in honour at the Hôpital St. Louis, have been newly sustained by Dr. Dubreuilh. He believes that the intra-epidermic inoculations of any kind of pus may give rise to impetigo. Still one cannot find in the suppurative focus the origin of this dermatosis ; but then its genesis is explained by the fact that we frequently find the *Staphylococci pyogenes* upon the surface of the healthy skin, and in the dust which surrounds us. The question of the terrain still remains the most important, since the same causes may act upon many individuals without determining in all eruptions of impetigo. In fine, impetigo appears to the author 'to be an entity, perfectly determinate from a clinical point of view by its superficial pustule, containing a quantity of viscous pus, which dries in thick and honey-like crusts, as well as by its contagiousness, while there is no ætiological specificity, it being due simply to an inoculation under certain conditions of pyogenic microbes of whatever origin.

"We cannot distinguish a contagious impetigo as a special form ; there is but one impetigo—the impetigo vulgaris—which is contagious."

"In Dr. Dubreuilh's opinion, ecthyma is only an irritated impetigo, inflamed by the sanguineous stasis, by the friction of the clothing, by traumatisms of every sort, and favoured by dirt, and often by a cachectic state.

"The following is the method which he recommends for the

treatment of this affection: The capital point, he says, is to detach the crusts and prevent their re-formation. The first indication may be filled by poultices or by ointments; the second, by applying them frequently and in great abundance, so that the surface of the skin may not be allowed to become dry. Thus he advises that the diseased surface should be smeared twice daily with a layer of the topic sufficiently thick, and covered with linen smeared with the same ointment, and retained in position by a suitable bandage. As an ointment he recommends vaseline and lard, each 50 grammes; oxide of zinc, 20 grammes; salicylic acid, 2 grammes; acetate of lead, crystallised, 1 gramme. Each time the application is renewed it is well to cleanse the diseased surface by gently wiping it rather than by washing, and to lift up the crusts which may have accumulated. In my former letters the method of treatment by borated and mercurial preparations which I have recommended for impetigo has been described."

3. Pustular sycosis of the whole body in a young man.

Jonathan Hutchinson (*Archives of Surgery*, January, 1890) narrates an extensive case of sycosis, in which not only the hairs of the beard were affected, but also those of the scalp, axillæ, and pubes. There were, indeed, pustules over the entire body in connection with the hairs. Although only twenty-two years old, he had been one year married, and he had never had any venereal disease. In early boyhood he had long been troubled by an eruption on the scalp, probably eczema. Of this he thought he had got quite well, and had remained so until the present outbreak, which began nine months ago. In the whiskers, chin, pubes, and eyebrows it was the common type of pustular sycosis; the hairs were in part destroyed, and many of those remaining were embedded in pustules. On the scalp, however, the condition was much less acutely inflammatory, and all the hairs were matted together in a thick, dry, scaly crust like that of severe pityriasis or seborrhœa.

The treatment recommended by Hutchinson consisted of a tar wash and an ointment containing tar and mercury; these were to be used constantly, the patient remaining in bed, and epilation being practised on the largest possible scale.

4. Herpes zoster and other skin affections following influenza.

(*Brit. Med. Journ.*, June 7, 1890.) Among the innumerable complications and sequelæ of influenza, rashes and skin affections of various kinds have not been wanting. Urticaria, ecthyma,

scarlatiniform, morbilliform, and polymorphous erythema, erythema nodosum, roseola, erysipeloid dermatitis, purpura hæmorrhagica, herpes of the lips, nose, and cheek, with several anomalous eruptions, have been reported by various observers. To this formidable list must now be added herpes zoster.

At a meeting of the Medical Society of Bologna, on March 28th, Dr. G. Finzi reported a case in a girl of fifteen who, after recovering from a severe attack of influenza, was seized with neuralgic pain, accompanied by a pricking and burning sensation, shooting from the back around the right side. On being seen, five days later, a chain of herpetic vesicles was found extending along the seventh intercostal space, the lymphatic glands in the axilla being swollen and tender, and pressure along the course of the seventh intercostal nerve making the patient scream with pain. In from eight to ten days the vesicles disappeared, the whole duration of the symptoms having been about a fortnight.

At the same meeting Dr. Camillo Moglia reported a case of herpes zoster corresponding to the eighth intercostal nerve of the right side in a girl of eighteen, in whom the disease appeared at the beginning of an attack of influenza, and lasted a month. Another case, in which "bilateral universal" herpes zoster (which, from the description, seems to have been a vesicular eruption all over the body) showed itself on the fourth day of influenza, is recorded by Dr. Luigi Pennetti in the *Riforma Medica* of May 29th. The eruption recurred in a milder form after a second attack of influenza. Altogether the herpes zoster lasted twenty-five days. In Dr. Finzi's case antipyrine relieved the pain, but Dr. Moglia's patient proved refractory to treatment.

5. On epidemic shingles.

Professor Kaposi, Vienna (*Wiener med. Wochenschr.*, 25 and 26).

At the meeting of the dermatologists at Prague, Professor Kaposi expressed his opinion that herpes zoster is a malady of infectious origin. He founds this theory on the following:—(1) That it generally occurs in small epidemics; (2) that these epidemics regularly recur in spring and autumn; (3) that it is very unusual for a person to be twice affected with the disease; and (4) that the various epidemics exhibit various types, one presenting only light cases, while another will be characterised by an almost uninterrupted series of severe ones. The last epidemic of shingles observed by Kaposi occurred in November, 1888, lasting till February, 1889, and consisted quite uniformly of mild attacks, numbering some forty cases, of which some were quite abortive, while others, although of an eminently benign nature, showed perfectly pronounced symptoms. Weiger's theory of herpes being

due to a local irritation acting through the medium of a fissure in the integument is to be unreservedly rejected; for, as Kaposi points out, in the commencement the skin is always perfectly intact, and we must consider the affection as due to a disturbance of the central nervous system, perhaps the spinal ganglia or spinal cord, for which an analogy is found in the cases of herpes due to poisoning with carbon monoxide.

6. Treatment of *tinea tonsurans*.

Brocq's letter (*Journ. of Cut. and Gen.-Urin. Dis.*, March, 1890). *Treatment of Dr. Quinquaud*.—During the past year Dr. Quinquaud has employed in the Hôpital St. Louis, of Paris, a new mode of treatment of *tinea tonsurans* without epilation, and which has given him most satisfactory results. Dr. Quinquaud is charged with the superintendence of the École des teigneux, which has been established at this hospital. This explains how he has been able to subject these little patients to such a vigorous treatment, for they are seen every day by the attendants charged with their care.

As soon as the children enter the school their heads are carefully washed with soap, then with a solution of sublimate (1 to 1000); the hair is cut very short with scissors or the scalp is shaved, especial care being taken to thoroughly cleanse the hairy scalp with a parasiticidal solution immediately after the shaving.

This being done, the greyish trichophytic patches are energetically scraped with a sort of curette of a special form designed by Dr. Quinquaud for this purpose. The derma is thus exposed, the superficial scales are mechanically removed, and with them the broken and diseased hairs and a certain quantity of trichophytic vegetations of the epidermis. In very timid or sensitive children the patches may be anæsthetised before practising the grattage; for this purpose Dr. Quinquaud uses the chloride of methyl. When the scraping is completed, the entire head, more particularly the affected surfaces, is bathed with the following solution:

R Hydrarg. biniodidi	...	...	...	...	0·15
Hydrarg. bichloridi	...	...	...	...	1·00
Mix in a mortar, and add to dissolve them:					
Alcoholis, 90°	...	...	...	...	40·00
Aq. destillat.	...	...	...	...	250·00

There are then applied over the diseased patches rolls of plaster prepared as follows:

R Hydrarg. biniodidi	...	...	...	...	0·15
Hydrarg. bichloridi	...	...	...	...	1·00
Emplast. simpl.	...	...	...	...	250·00

Or in place of this a plaster prepared with hydrate of bismuth. The head of the child is then enveloped in a towel or cloth; the dressing is thus maintained for forty-eight hours. At the end of this time the plaster is removed, the head soaped, and frictions with the above-mentioned lotion employed. The plasters are then renewed, and the same procedure is repeated every two days until a cure is effected. If this is not accomplished, epilation is practised, or one or two more scrapings are employed.

This method does not ordinarily occasion inflammatory phenomena; if by chance a few pustules should develop, it is only necessary to decrease the strength of the lotion and the plaster to cause them to disappear.

Dr. Quinquaud has in this manner effected numerous prompt and complete cures, but he particularly insists upon the fact that the treatment should be vigorous and executed with the greatest regularity, otherwise no definite result will be obtained.

Treatment of Dr. Besnier.—This is the latest treatment recommended by Dr. Besnier, of the Hôpital St. Louis :

1. Cut all the hair as short as possible, and keep it cut close during the entire treatment. Do not on any account shave it, as the razor favours auto-inoculations.

2. Practise with the greatest care a circle of epilation six to eight millimètres in width around all the diseased patches, and in particular around the original patch.

3. Eliminate by raclage with the curette the broken hairs and all detritus which cover the diseased patches, but do this with moderation, without provoking a sanguineous effusion. It is quite easy to thus completely clear the affected surfaces by taking the precaution to smear them with any greasy substance—oil, lard, vaseline, etc.

4. Accordingly as the hairy scalp is irritated or not, wash it daily with ordinary soap, with soap medicated with tar, boric, or salicylic acid, or sulphur, etc., or simply with the yellow of an egg and bran-water.

5. Then cover the trichophytic patches, especially when they have attained a certain size, with rolls of fine Vigo plaster.

Treatment recommended by Dr. Brocq.—The method of Dr. Besnier appears to me most excellent; it very closely approaches that of Dr. Quinquaud. It differs from the latter essentially in the methodic and regular employment of epilation. There is in this procedure a condition of security and of facility of surveillance which at present cannot be renounced.

Dr. Besnier does not believe in the efficacy of parasiticidic agents; nevertheless, he is the first to recommend the employ-

ment of these substances if one has a theoretic confidence in their action.

Until their inutility has been superabundantly proved, I think that the practitioner would be wrong in neglecting this chance of success; still, I am in one respect of the same opinion as Dr. Besnier, who discounsels the employment of ointments, for numbers of children support badly applications of greasy substances.

I adopt, then, the complete treatment formulated by Dr. Besnier; but I add to it a daily lotion with the mixture of biniodide and bichloride of mercury, after the method of Dr. Quinquaud.

It is well understood that when the affection seems to be cured it is necessary, before delivering to the patient a certificate of cure, to submit him to a careful observation extending over several weeks; otherwise there are grave chances of one being deceived.

7. Hydronaphthol in ringworm.

In an article in the *Lancet*, November 30, 1889, on page 1111, Dr. Morgan Dockrell gives the following as his treatment of *tinea tonsurans*:—

Have the head completely shaved, leaving the usual fringe all round; then wash with a 5 per cent. soap of hydronaphthol, using water as hot as can be borne. After drying the scalp, apply over the affected area a 10 per cent. plaster of hydronaphthol in narrow strips, letting each strip overlap its fellow, taking care that the plaster extends quite half an inch beyond the margin of the diseased patch. Outside the margin of the plaster paint a layer of a 10 per cent. hydronaphthol jelly (when melted) so as to exclude all air. At the end of four days he removes the plaster, and the diseased stumps are found adhering to it. He repeats the previous process, applying for one week a 20 per cent. plaster. Again the process is repeated, this time applying a 10 per cent. plaster for ten days, when, on removal, the disease will be found to be cured. Care should be taken that all articles brought in contact with the head before treatment be destroyed, otherwise reinfection will take place, and the treatment brought into discredit. He says that the above treatment has been very successful in his hands.

8. On the treatment of lichen ruber.

F. Broes van Dort (*Berlin. Wochenschr.*, 27). The remedies hitherto employed in the treatment of lichen ruber are principally of the nature of parasitocides. On searching the literature on the subject, Dr. van Dort was surprised to find that almost all

methods of treatment that had proved really efficacious, and had in consequence been more or less extensively used, were of this nature. This list comprises arsenic, iodide of potassium, colchicum internally; while external applications are made with corrosive sublimate, tar, chrysarobin, sublimate-collodium, salicylic acid dissolved in spirits of wine, pyrogallic acid, naphthol, baths with vinegar and bichloride of mercury, soft soap; not to mention the more modern methods of subcutaneous injections of arsenic (Köbner), with pilocarpine (Lassar), with inunctions of carbolic acid and sublimate ointment (Unna), and others. The fact that the only drugs which have proved valuable are of the nature of bactericides, points strongly to a parasitic origin of the disease. Hitherto lichen ruber has been considered to be dependent on some neurotic disturbance, although a satisfactory explanation of its prime causes has not yet been brought forward. Dr. van Dort shares Lassar's opinion that it is quite possible that it may originate through the action of microbes. Pfeiffer, of Weimar, has severely shaken the otherwise universally accepted theory of the neurotic origin of herpes zoster (as also has Kaposi), especially by showing that the distribution of the vesicles along the nerves coincides equally well with the arrangement of the blood-vessels as with that of the nerve filaments. In the same manner, we may presume that the eruption of tubercles and nodules in lichen ruber is due not to changes in the nerves alone, but to some foreign element present in the blood, so that it may be considered a localised infectious lymphangitis. Lassar's treatment of lichen is in accordance with this hypothesis, and is warmly recommended by Dr. van Dort. It consists in lightly touching the heads of the nodules for a fraction of a second with the finely bent end of the galvano-caustic wire or with the point of a Pacquelin thermo-cautery. The scurf thus produced is so insignificant that simply powdering the parts with an indifferent toilet powder is quite sufficient for after-treatment. The result is uniformly satisfactory. Even quite intractable and otherwise intolerable itching is promptly removed, and the disease itself is completely and lastingly cured.

9. *Lupus vulgaris*.

Dr. Koch, the renowned bacteriologist of Berlin, has startled the world recently by his newly-discovered treatment of tuberculosis. The main facts having appeared in nearly every medical journal, as well as in the daily papers, it is unnecessary to review the whole subject. The following remarks, therefore, are intended to give a short account of the subject as far as it concerns the treatment of lupus.


Till recently some of the best authorities on the subject have not accepted the view that lupus was a true tuberculosis. Koch's method seems, however, likely to become a certain diagnostic agent, and forms an additional argument in favour of the view that lupus is a true tuberculosis of the skin. Owing to the scarcity of the fluid, no extensive experience has been gained as to its power of differentiating between two diseases closely allied in so many of their clinical aspects—*lupus vulgaris* and *lupus erythematosus*. It seems, however, to have been already proved that it is a very trustworthy method of diagnosing tuberculosis from carcinoma and syphilis.

The preliminary announcement of the discovery was made by Koch in his address on "The Present Position of Bacteriology" at the International Medical Congress held at Berlin in August, 1890. In his paper published in the *Deutsche medicinische Wochenschrift*, a translation of which appeared as a supplement to the *Brit. Med. Journ.* of Nov. 15, 1890, he states in full his views upon the subject. Lupus, being a superficial disease, affords the best opportunity for studying the new treatment. Having had the advantage of personally observing a case of my own treated by this plan, I can vouch for the remarkable improvement which has taken place in the patient's condition.

The effect upon the lupus tissue is remarkable. A few hours after the fluid has been injected under the skin of the patient's back, the first dose varying from a milligram to a centigram, a constitutional reaction is produced, which consists of fever, malaise, sickness and prostration, while at the same time the lupus tissue is attacked and swells up, in some cases enormously. The skin of the part becomes tense, tender, and surrounded by a red blush much resembling erysipelas, while the "apple-jelly" lupus nodules are first swollen, then moist with serum or pus, and finally dry up into brown scabs, which fall off in a few days, leaving smooth scars.

10. Treatment of lupus with ice.

Hanssen (*Medicinisches Revue*, May, 1889) relates a case of lupus which he treated by cold, according to Gerhardt's suggestion. The patient was a woman with a lupus ulcer, which occupied the left quarter of the under lip, and later the whole half of the lip. The process repeatedly relapsed, in spite of the use of different caustics, and the treatment was very difficult on account of extreme hyperæsthesia. Finally an ice-bladder was applied for three hours every morning and evening, and the sores healed in a few weeks. There had been no relapse at the end of three months.



11. Electrolysis in the treatment of lupus vulgaris.

George T. Jackson (*Journ. of Cutan. and Gen.-Urin. Dis.*, Nov., 1890), after speaking of the scant attention paid to this method in our text-books, describes the plan of applying the treatment adopted by Gärtner and Lustgarten, who brought the subject prominently before the profession in 1886, in a paper published in the *Wiener med. Wochenschrift*. Jackson decided to treat cases by electrolysis alone, so as to judge fairly of its merits. His plan has been that of Gärtner and Lustgarten modified, and is as follows:—The electrode is made of zinc, set in a hard rubber button, the hard rubber projecting for a millimetre beyond the metal. The diameter of the plate is half an inch. This electrode is made to fit on to an ordinary sponge electrode handle. The needle he uses is an ordinary rather coarse sewing-needle. The current is constant, of course, and the metallic electrode is attached to the negative pole. The sponge electrode is placed indifferently on the body, and the current is completed when the metallic electrode is in place. The strength of the current employed was about seven milliamperes, and it was allowed to pass for about seven minutes. The electrolytic action of the current seems to expend itself upon the diseased tissue alone. The sound skin is little, if at all, affected. Large patches are treated for a few times with the flat electrode, and remaining tubercles scattered over the patch are treated separately by the needle with a current of only about three milliamperes.

The author claims the following advantages for this method of treatment:—

1. It is comparatively painless : no anæsthetic being required.
2. No loss of blood to cause dread to patient.
3. Does not keep patient from business, or cause deformity ; no unsightly plasters required.
4. The treatment goes to the root of the disease, to the bottom of the tubercles, with more exactness and less damage to surrounding skin than any other caustic or surgical method.
5. The scar left is smooth and not unsightly.
6. Result as good as, if not better than, that by any previous method.

The author cannot speak yet as to the possibility of recurrence of the disease in the scar, but he hopes members of the profession will try the method, as he feels sure they will be pleased with it.

12. Treatment of alopecia areata.

Beaumur (*Journ. des Mal. Cut. et Syph.*, Dec., 1889) treats alopecia in the following way. The hair is shaved, and the scalp washed every morning with soap and hot water ; when the hairs

have grown sufficiently long, epilation is practised around the patches as far as slightly adherent hairs are found. He then applies some stimulating lotion, such as the following :—

Crystallised acetic acid	} aa equal parts.
Chloroform	
Distilled water	

Stir briskly before painting it on the affected parts.

The following lotions are employed at St. Louis Hospital by Besnier with success :—

Tincture of cantharides	} aa equal parts.
Chloroform	
Baumé's tincture	
Fioravanti alcoholate	

or

Tincture of iodine	} aa equal parts.
Chloroform	

or

Hydrochloric acid	} aa 1 gramme
Alcohol	
Glycerine		3 grammes.

When the downy hairs begin to grow he ceases the epilation, but cuts the down twice a week with scissors. He continues to soap the head every morning.

More recently he has adopted the plan of applying a stimulating lotion in the morning and the following ointment in the evening :—

Salicylic acid	} aa 1 gramme
Resorcin	
Sulphur precipitated	10 grammes
Vaseline	100 grammes.

Instead of simple vaseline, a mixture of equal parts of vaseline and lanoline may be used as an excipient.

13. Notes on pilocarpine in dermatology.

Klotz (*Journ. of Cutan. and Gen.-Urin. Dis.*, Nov., 1890), in an article giving his experience of this remedy, expresses surprise that it has not received more attention from dermatologists, considering its well-known action upon the skin. He points out that serious ill-effects have only been produced by large doses, such as the injection of as much as the one-third of a grain. Pick has been in the habit of giving much less, half that dose, by the mouth, and has found the patient's health in no way injured after the use of the remedy continued for months. Klotz says he has used the muriate of pilocarpine in some cases of eczema which he

DISEASES OF THE EYE.

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1. Aristol in ophthalmic surgery.

Aristol (*Recueil d'Ophthalmologie*, Juin, 1890, p. 374) is a reddish-brown substance obtained by the action of iodine on an alkaline solution of thymol; it is a diiodide of dithymol. It has been found serviceable in dermatology, especially in the treatment of cases of lupus. When, by the use of the spoon or of caustics the seat of the eruption has been converted into a flat ulcer, the formation of a smooth cicatrix rapidly follows the application of aristol. A similar effect is observed also in syphilitic and scrofulous ulcerations, and its beneficial action has been particularly observed by Neisser in a case of deep ulceration of the cornea, with sharply defined edges, occurring in a woman affected with lupus. M. Brocq in a communication addressed to the Société Médicale des Hôpitaux has published a case of a large ulcerated superficial epithelioma of the face which underwent rapid cicatrization when treated with the powder of aristol. It appears to have no toxic properties, and has been employed in gynecology, and by the laryngologists.

2. The aniline compounds as antiseptics, and the action of pyoktanine in particular.

Several essays have appeared on this subject, amongst which the following may be noticed:—Stilling: *Anilin Farbstoffe und ihre Anwendung in der Praxis* (Trübner: Strasbourg, 1890); Mauthner: *La Semaine Médicale*, Mai 28, 1890; Braunschweig: *Fortschritte der Medizin*, 1890, No. 11, p. 408; Petersen: *Wratsch*, No. 20, 1890; Coppez: *Bulletin de la Société des Sciences Médicales et Naturelles de Bruxelles*, Séance du 7 Juillet, 1890. M. Merck, the manufacturing chemist of Darmstadt, in issuing his circular appended to it a note stating that pyoktanine is a remedy which not only prevents the pernicious effects of morbid substances, but is capable of curing existing inflammation, and of suppressing suppuration in wounds and tumours. It is perfectly innocuous, and has the special advantage of being inodorous. It has been introduced

into practice by Dr. Stilling and Wortman of Strasbourg. It is important that the preparation should be entirely free from arsenic. M. Merck makes two kinds of pyoktanine, one of which is blue (var. *cæruleum*), and the other yellow (var. *aureum*). The first-named is especially adapted for general surgery, the latter for ophthalmological purposes. It is sold in the form of powder, ointment, sticks, and pastilles, whilst gauze, wool, and silk, are impregnated with it. Dr. Stilling remarks that the antiseptics hitherto employed have no influence in arresting suppuration when it has once commenced, whilst certain aniline dyes, and especially the violet ones, possess not only the properties of a good antiseptic, but may be used to combat with success suppuration when it is fully established. The violet dyes have been shown by Wortman to possess the power of arresting the development of bacteria to an extraordinary degree, to such a degree indeed that a portion of dough plunged into a 2 per thousand solution of methyl violet never becomes acid. If a drop of a 5 per thousand solution of methyl violet be instilled into the eye of a rabbit—an albino by preference—the conjunctiva and sclerotic become intensely stained, and the effect may be observed to extend to the iris. The cornea, however, so long as the epithelium continues intact, remains unstained. If, however, a puncture be made in the substance of the cornea with a keratone the membrane quickly assumes a deep purple tint, but on the following day the colour will be found to have completely vanished. Stilling commenced his experiments on its therapeutic value on a rabbit into the eye of which he had injected some fluid containing the staphylococcus pyogenes aureus, and which had in consequence a severe attack of hypopyon keratitis. The injection of the above solution at once stained the whole cornea, but the pathological process was arrested. Again, he had the opportunity of observing a still more surprising case, namely, an ulcer of the cornea in a scrofulous child treated without benefit for a month which was cured in the course of twenty-four hours by the instillation of a few drops of a solution of methyl violet. The results of its use in other cases have satisfied him that methyl violet as a means of treatment of ulcers of the cornea leaves all other methods far behind, perhaps even galvanocautery. He has also found it to be extremely serviceable in blepharitis, conjunctivitis, phlyctenulæ, eczema of the lids, keratitis parenchymatosa, and serous iritis, and even in one case of severe sympathetic ophthalmia, in which one eye had been enucleated. Leppmann (*Deutsche Med. Wochenschrift*, 1890, No. 23, p. 493) states that he has obtained excellent results from the subcutaneous injections of methyl blue in cases of painful rheumatic

neuritis, the pain in such cases being greatly relieved. It is right to add that M. Carl, of Frankfort, and Braunschweig have not found the anilin dyes quite so successful as stated by Stilling.

3. Treatment of lacrymal obstruction.

This subject was brought under discussion at the May meeting of the French Ophthalmological Society by M. Gillet de Grandmont (*Recueil d'Ophthalmologie*, May, 1890, p. 278) who considers the method of division of the canaliculi now usually adopted to be unsatisfactory in its results. He prefers simple dilatation of the puncta and of the canaliculi by means of a conical sound in all cases except those in which the obstruction is due to the closure of the lower part of the nasal duct owing to swelling of the mucous membrane covering the inferior turbinal bone; in such cases he employs the galvano-cautery to the interior of the nose near this region, or, in some instances cuts away a small portion of the turbinal bone; where, however, there is suppuration in the lacrymal sac he puts aside his sounds, and adopts the plan of antiseptic irrigation. In the subsequent discussion, much difference of opinion in regard to the treatment of cases of lacrymal obstruction was shown to exist. M. Armaignac approved of the above-mentioned treatment, and thought the lacrymal apparatus should be mutilated as little as possible. M. Galezowski stated that he was quite satisfied with the classical treatment suggested by Sir William Bowman. He thought that, in the great majority of cases, the part at fault was the opening of the canaliculi into the lacrymal sac. M. Suarez de Mendoza thought that attention should be paid to the cause of the epiphora, and the treatment should vary according to circumstances. In cases of catarrhal or organic stenosis of the nasal duct or of the canaliculi, the division of the canaliculi is useless, and all that is required is the dilatation of the punctum with the lacrymal sound. In other instances the puncta deviate from their normal position, and then an incision is absolutely necessary. It need not, however, be more than one and a half or two millimetres in length. When there is constriction of the sac he prefers elastic or whalebone sounds to those made of metal, which he thinks often do harm. M. Abadie stated he had often succeeded by adopting Bowman's method; when this fails, he either leaves the patient alone if the lacrymation is slight, or if abundant, removes the lacrymal gland. In regard to antiseptic injections he has found the best to be iodoformed oil of vaseline.

4. Treatment of lacrymal fistula by cauterisation with lactic acid.

At the Eighth Meeting of the French Ophthalmological Society, held in Paris in May, 1890, M. Venneman (*Recueil*

d'Ophthalmologie, Mai, 1890, p. 277), of Louvain, called attention to the value of the application of lactic acid in the treatment of lacrymal fistula. He described it as an agent limiting its action to the degenerated tissues, destroying granulations, and stimulating the vitality of the mucous membrane of the lacrymal sac and duct, whilst materially aiding the cicatrization of the fistulous orifice. Its application causes but little pain, and the plan adopted was the daily introduction into the fistula of a tent impregnated with the acid, superimposed upon which was placed some antiseptic dressing. After a few applications a crust forms at the level of the fistulous orifice, and a cure results in the course of from one to five weeks. In the discussion which followed, **M. Grandclément**, of Lyons, judiciously recommended that the canaliculus should first be divided and a probe passed, a proceeding that will *per se* sometimes effect healing of the fistula.

5. Treatment of affections of the cornea and conjunctiva by massage.

M. Costomiris (*Archives d'Ophthalmologie*, t. x., 1890, Janvier et Février, p. 37), the Professor of Ophthalmology in the University of Athens, in an article devoted to this subject, draws attention to the importance of the study of the writings of the ancients for suggestions, sometimes of great value, in practice. Amongst these he finds massage to have been familiar to the ancient Greeks, and quotes the following passage from Hippocrates :— "Massage can relax, tighten, fatten, emaciate; violent friction contracts, gentle softens; prolonged emaciates; and when of moderate duration fattens." The four indications then, according to Galen, who comments on this passage, are that hard friction is indicated when the body is relaxed and perspires in excess; gentle friction, on the contrary, when the body is hard, tight, and without perspiration; prolonged friction is indicated in fat persons, and friction of moderate duration in the thinning of the body, or of any of its parts. **M. Costomiris** states that as long ago as 1873, in the island of Symé, being struck with the brilliant results of massage in articular rheumatism and amygdalitis, he began to apply this proceeding to cases of granular lids, rubbing the conjunctiva with the aid of a mucilage of tannin, containing one part of tannin to twenty of mucilage, or of tannin powder with cuttle-fish bone; and the cornea with calomel either in powder or in the form of pomade (1 in 10). He subsequently, after some interval, employed this method in all stages and degrees of inflammation of the conjunctiva, cornea, sclerotic, and lids. He is unable to lay down any precise rule for the pressure that should be applied, nor for the duration of the sitting, but leaves it entirely

to the good sense of the operator and to the feelings of the patient. In the greater number of cases one of the best substances to rub in is boric acid reduced to an impalpable powder. Other substances are a pomade made of white precipitate (1 in 16), of yellow precipitate (1 in 30), or stronger, and of iodoform of the same strength. The proceeding he adopts is to evert the eyelids, to spread upon the surface some finely-powdered boric acid, and then with the tip of the finger, perfectly cleansed by previous washing, to rub the powder into the mucous membrane of the lids, the *cils de sac*, the angles, and the caruncle five or six times daily. The same proceeding is to be adopted in regard to the cornea, employing boric acid pomade or collyria of boric acid (4 in 100), subacetate of lead (1 in 500), of nitrate of silver (1 in 500), as well as atropine with boric acid in the proportion of 1 per cent. of atropine to 5 per cent. of boric acid in water. The direct massage of the cornea and conjunctiva is always more advantageous than massage through the lids; and when the latter proves of no service, the former is most effectual, especially in cases of fleshy pannus, and in grave affection of the cornea consequent on purulent ophthalmia or upon croupous or diphtheritic ophthalmia. He has also found it serviceable in scleritis and episcleritis, in interstitial keratitis, in hypopyon, in cases of infiltration abscess and ulcers of the cornea, in nebulae and leucomata, in oedema and ecchymosis, in blepharadenitis and eczema of the lids and in tenonitis; but it has proved of little or no service in cases of disease of the internal tissues of the eye.

6. Treatment of trachoma.

Raehlman, of Dorpat, and Schmidt-Rimpler, of Göttingen (Report of papers read in the Ophthalmological Section of the Berlin Congress, *Recueil d'Ophthalmologie*, Août, 1890, p. 473) state they have satisfied themselves that trachoma or granular conjunctivitis is a disease differing in its pathology, its development, and course, from simple follicular conjunctivitis. Trachoma, they believe, is propagated by a virus which is directly transmissible, and the contagion is in great measure independent of atmospheric influences, but a certain predisposition on the part of the mucous membrane is probably required. In the discussion, and in papers which followed, Swan Burnet observed that he had only observed trachoma once in 6,000 negroes who had consulted him. M. Chibret believed that the Celtic race had little or no predisposition to this disease, and that if imported amongst them it quickly died out. M. Salzer objected to Raehlman's statements, and thought atmospheric influences were of importance, citing the case of the inhabitants of Java, amongst whom the disease is stationary when they work indoors,

but when the dry season comes and they are exposed to wind and dust the disease is rife. M. Ziebrecht, of Ghent, has found in the treatment of trachoma that the application of acetate of lead, carefully applied, the excess being washed away, is successful, and has also obtained good results from the application of tannin applied after Hairion's method; but the most useful remedies in his hands have been solutions of nitrate of silver and of the chloride of zinc, each in the proportion of one per cent.

7. The treatment of chronic trachoma by transplantation of mucous membrane.

K. Noisewski, of Dünaburg (*Separat-Abdruck aus dem Centralblatt für praktische Augenheilkunde*, 1890, August Heft), states that E. v. Millingen was the first to transplant a portion of the mucous membrane of the mouth in cases of cicatricial contraction of the conjunctiva producing entropion; and though others have suggested a similar proceeding in other forms of disease, he believes he is the originator of the application of the principle to chronic trachoma. He does not consider it to be appropriate for all cases, but essentially for those in which the cornea is completely intact and possesses its normal sensibility. It is interesting to notice the mode in which the transplanted mucous membrane influences the contiguous trachomatously degenerated membrane. These parts soon clear up, and begin to secrete a sticky mucus. Three stages or phases may be observed—(1) the stage of maceration; (2) that of vascularisation; and (3) that of vascular atrophy. The first stage lasts from five to seven days, and may terminate either in the adhesion of the transplanted flap or in its softening and detachment. The second stage usually lasts several weeks. The flap swells, and becomes vascularised. It appears vascular and hypertrophied, and if very vascular it may be scarified with advantage. The third stage lasts about four months. Particulars of eight cases are given.

8. Treatment of pannus.

Gruening (*Transactions of the American Ophthalmological Society*, Session xxv., Art. 3) suggests the use of the curette in cases of inveterate pannus. He considers that peritomy and punctiform cauterisations are inconstant in their effects. Blennorrhagic inoculation is objectionable and dangerous. Jequirity is often efficacious, but is uncertain, and sometimes disastrous in its action. During the last two years he has practised curettage of the cornea, and in every case (eleven in number) has been successful. In three cases, however, relapses occurred; but these yielded to a repetition of the same treatment. The proceeding he adopts is to render the cornea insensitive by means of a six

per cent. solution of cocain. Then he scrapes the epithelium of the cornea and the vessels with a spud or instrument with which foreign bodies are removed from the cornea. Each visible vessel is followed up to the conjunctival border. Whilst this is being done, a stream of lukewarm solution of boric acid is allowed to play over the surface. Warm compresses of the same solution are then applied for three or four hours. Twenty-four hours after the operation the cornea will be found covered with a dense greyish membrane, which is only feebly adherent to the surface, and can be easily lifted off. This membrane disappears spontaneously in the course of three days. At the end of two or three weeks the epithelium is reproduced, and the cornea is transparent.

9. The influence of tenotomy on the vision of patients suffering from squint.

Considerable divergence of opinion exists in regard to the causes of squint, and on the effect of the division of the muscle implicated in its production. Some, with v. Graefe, Leber, Javal (*Archives d'Ophthalmologie*, ix., No. 4, p. 220, 1889), and others, admit that a beneficial influence on vision is exerted by the division of the muscle; others, as Schweigger and Alf. Graefe, deny that such division exerts any influence on the vision. Schweigger considers that the amblyopia of strabismic patients is always congenital, and contends that neither systematic exercise, nor injections of strychnia, nor tenotomy, is capable of effecting any improvement in it. Violet has just made an extended series of observations on the cases of strabismus treated in Professor Landolt's clinique in Paris; and the general conclusion at which he has arrived is that the operation not only improves the appearance of the patient, but that, if the use of the squinting eye be steadily practised, the surgeon may, in a large number of cases, promise the patient that he shall experience great improvement in the sharpness of his vision in this eye.

10. Purulent ophthalmia and the gonococcus.

Dr. Andrews, of New York (Report of American Ophthalmological Society, in the *Ophthalmic Review*, 1890, Sept., p. 275), has paid especial attention to the relation of the gonococcus to purulent ophthalmia; and by practising the Gram-Roux method of research, has been able to distinguish this bacterium from others resembling it. He found that in 144 cases of chronic urethral blennorrhœa, the gonococcus was present 108 times; while in 17 cases of acute gonorrhœa, in 72 cases of purulent ophthalmia in adults, and in 122 cases of the purulent ophthalmia of newly-born children, it was invariably present. (So large a number of

cases of purulent ophthalmia coming under the notice of one observer seems to indicate the advisability of adopting Cr  d  s precautionary measures of cleansing the vagina by injections of antiseptics antecedent to delivery in New York.) The treatment employed by Dr. Andrews was confinement to bed; the application of pledgets of lint wetted with iced water, and renewed with fresh ones, the old ones being burnt as often as they become warm; frequently repeated irrigation of the eye with a saturated solution of boric acid, and the instillation of a two per cent. solution of nitrate of silver when the discharge is profuse. Care should be taken to avoid inoculation of the other eye if it were still healthy, and of the eyes of those around the patient. In the discussion which followed, Dr. Fooley and Dr. Eider thought the application of nitrate of silver harmful at the outset, and the former stated that, even when the blennorrhoea is completely established, he only uses a one per cent. solution.

11. The treatment of strabismus by means of the stereoscope.

At a meeting of the Soci  t   d'Ophthalmologie de Paris (*Recueil d'Ophthalmologie*, s  r. iii., ann  e xii., No. 2, Febvier, 1890), on the 4th of February, 1890, M. Parent read a note from M. Javal, in which he states that in one case, after tenotomy had been performed on both eyes, with an effect slightly inadequate to produce single vision, a perfect result was obtained by continuous effort in endeavouring to fuse the images. The patient worked at producing single vision for no less than twelve or fourteen hours daily for a considerable period, and was rewarded by experiencing complete success.

12. Treatment of certain forms of keratitis and iritis.

M. Chibret, of Clermont-Ferrand (*Archives d'Ophthalmologie*, 1889, Art. 5, September-October, p. 460; and *Centralblatt f. Augenheilkunde*, Supplement-Heft, Jahrgang 1889, p. 408), records numerous cases of a special form of inflammation of the eye, especially affecting the cornea and iris, to which he has applied the term synalgic, because neuralgic pain can be induced by pressure on the points of emergence of certain nerves (painful points); the affected nerve being in some instances the supra-orbital, in others the nasalis externus. These forms of inflammation are very protracted, and resist all forms of medication, but yield immediately to massage exercised with the tip of the finger over the painful spot. This proceeding, which is at first very painful, must be practised for as long a period as it can be borne, and with as much pressure as possible. The symptoms are

Indian vervain in 45 minutes ; of French geranium in 50 minutes ; of organum or of *Dictamnus cretica* in 75 minutes ; of patchouli in 80 minutes ; of absinthe in 4 hours ; and of sandal-wood in 12 hours ; the essence juniper, 27 hours ; of melissa, 30 hours ; of valerian, 32 hours ; of citron, 32 hours ; of angelica, 35 hours ; of turpentine, 45 hours ; of opoponax, 45 hours ; of rose, 46 hours ; of chamomile, 48 hours.

15. The operative procedure to be adopted in cases of secondary cataract.

M. Dufour (*Recueil d'Ophthalmologie*, Mai, 1890, p. 288) read a paper before the French Society of Ophthalmology in which he advanced the following propositions in regard to the treatment of secondary cataract :—(1) The operation is only justifiable when bad consequences are absolutely preventible. (2) In the present state of science it can be practised in such a way that all chance of infection from without is avoided. At the same time precautions must be taken against the possible occurrence of infection from within. (3) It is only indicated when the vision is below $\frac{1}{10}$, and in the event of a pellicle sufficient to account for this degree of impairment of vision being visible in the pupil. (4) It is expedient to wait for six or seven weeks after the operation of extraction before the operation for the secondary cataract is resorted to. (5) The membrane should be divided with a stop-needle if it is simple, but with a Graefe's knife if there are iritic adhesions, or by Wecker's scissors. (6) In the simple operation it is important that the stop-needle should not have the form of a blade with the lateral faces angular, but that the angles should be rounded, lest perchance fragments of the capsule be carried into the common wound. Our French *confrères* do not appear to have recognised the value of two needles in preventing traction on the iris and ciliary processes. In the discussion which followed **M. Panas** remarked that the operation was contra-indicated when the patient could read, and thought that the fragments of the capsule which remained after the operation for cataract should be extracted bodily. If there should be a membrane totally occluding the pupil **M. Wecker's** method of operating by capsulo-iridectomy is certainly the best. **M. Wecker** thought there was a real danger in dividing the vitreous humour too freely ; a cicatrix was apt to form in it which might lead to detachment of the retina. **M. Martin** preferred the use of **Knapp's** knife to either the needle or Graefe's knife. **M. Suarez de Mendoza** thought two kinds of secondary cataract should be distinguished : those which occur after extraction in a healthy eye, and those which occur in eyes that have suffered

from irido-choroiditis, with more or less complete synechia, and in which very frequently iridectomy has been practised. The instrument he preferred was Wecker's scissors, and he thought that in many instances he should be content with doing a little, and should not attempt to do too much at once, but would repeat the operation as occasion might require. He has adopted the following plan, which has proved successful in several severe cases:—He makes a puncture and a counter-puncture with a Graefe's knife, enlarging both wounds as he withdraws the knife. By introducing a very well-made pair of Wecker's scissors through each wound, he is enabled to make two convergent incisions, and drags away the triangle of iris with a pair of iris forceps.

16. Treatment of the capsule before and after the operation for cataract.

At the Berlin Congress **M. Knapp** (*Recueil d'Ophthalmologie*, Août, 1890, p. 468) read a paper before the Ophthalmological Section on the mode of dealing with the capsule, in which, instead of the usual method of lacerating the capsule from the front, he advocated the laceration of the capsule external to the pupillary area. The ordinary plan he maintains leads to cicatricial formations at the margins of the wound of the capsule, and are injurious, partly owing to their interference with vision by their opacity, and partly owing to the difficulty of dividing or removing them at a subsequent period. Laceration of the capsule at its margin or periphery permits the escape of the lens matter without the likelihood of inflammation or the formation of cicatrices, and the division of the capsule from the front is easily effected.

17. Treatment of membranous opacities in the vitreous.

Dr. Bull of New York (*Transactions American Ophthalmological Society*, 1888, Reprint), observes that membranes and cord-like opacities in the vitreous humour are not usually freely movable or floating, owing to the continuity of the original septa, and to the consistency of the intercellular substance. When, however, the processes of retrogression, metamorphosis, and degeneration set in, and the intercellular substance becomes fluid, then these membranous opacities may become freely movable. Such membranes resist all internal medication. **Von Graefe** first suggested the possible advantage of surgical interference in them. He rotated the eye-ball strongly inwards, and then plunged a keratonyxis needle through the sclera between the external and inferior recti, just in front of the equatorial region parallel to the plane of the iris and behind the lens, and divided the membrane

in several places from before backwards, and the result was excellent. Dr. Bull has performed this operation in 17 cases. Cocain was used; the puncture was made with a fine needle, a broad needle, or a cataract knife, in different cases, generally just below the external rectus, but sometimes the internal rectus, and in front of the equator of the eye, but behind the ciliary processes. He found that little or no reaction followed, and that a protective bandage was only required for a day or two. The details of the cases are given, and the results were in some instances very good.

18. The extraction of lenses dislocated into the vitreous.

Dr. Charles Stedman Bull (*New York Medical Journal*, September 6, 1890, p. 261) states he has found the following manipulation useful in the removal of dislocated lenses. The eyelids are held open by the ordinary wire speculum, and the corneal section is made upwards with the ordinary narrow knife, the ends of the incision being in the limbus, and the apex in clear cornea just below the limbus. The speculum is then removed, and the upper lid is lifted up and away from the eyeball by the finger of an assistant, or, better, by a wire elevator held by an assistant. Pressure is then made upon the lower part of the eyeball with the finger or thumb of the operator, by pressing the lower lid against the eye directly backwards. Almost immediately the lens will be seen to rise and to appear in the field of the pupil, and in not a few instances comes partially through the pupil and engages in the wound. Sometimes the assistance of a blunt hook or the wire spoon becomes necessary to complete the removal of the lens at this stage of the operation. If continued pressure backwards fails to push the lens through the pupil, or causes a prolapse of the vitreous, it should be discontinued, and the lens removed at once by hook or spoon.

19. Treatment of detachment of the retina.

M. Abadie (*Recueil d'Ophthalmologie*, Mai, 1890, p. 293) states that he has obtained good results from puncturing the globe with a knife similar to that of v. Graefe, but made with a rather thicker and stronger blade, the back being grooved. This knife is attached to a Pravaz syringe, which serves as a handle to it, and thus renders it possible to inject a drop or two of fluid without withdrawing the instrument. In cases of slight detachment he injects a single drop of his ioduretted iodide solution, but when it is large a drop should be thrown into each end or rib of the detachment. The first injection appears sometimes to aggravate the affection, but a second seldom fails to effect a cure. The results obtained by

other experimenters do not appear to be quite so satisfactory. **M. Landolt** thinks that in cases of extensive detachment no puncture should be made, and is satisfied in slighter cases when he has found his puncture has done no harm. Others have observed as results of the injection of tincture of iodine (perhaps too strong), cataract, iritis, and irido-cyclitis. **M. Guende** has tried corrosive sublimate instead of tincture of iodine, and has obtained good results.

20. Quinine amaurosis.—An interesting case of this affection is recorded in Galezowski's *Recueil d'Ophthalmologie*, Juin, 1890, by **M. Tiffany**, of Kansas. The patient was an abstemious man, who was accustomed to take small doses of quinine; which acted rather strongly upon him. On February 17, 1890, he was ordered about 5 grains of quinine for a dose with a little ipecacuanha, and took that quantity at 8 p.m., repeated it at 11 p.m., again at 1 a.m., and took 10 grains at 4 a.m. He saw the time by his watch at 4.30. He fell asleep, and on awaking at 8.30 on the following morning found himself perfectly blind. The pupil was widely dilated, the optic disc and retinal vessels white and anæmic. A saline purgative was administered, eserine solution instilled, and sulphuric ether in the first instance, and amylnitrate subsequently was directed to be inhaled. Under this treatment vision slowly returned, so that on March 4—that is, in the course of a fortnight—the patient was able with difficulty to read.

21. Early diagnosis and treatment of myopia.

M. Nuel, of Liège (*Recueil d'Ophthalmologie*, Mai, 1890, p. 297), has remarked in several cases of myopia exceeding seven diopeters a peculiar disposition of the optic papilla and retinal vessels. This consists in the central vessels, instead of being directed upwards and downwards, assuming a direction towards the temple. They rest on the papilla in the projecting margin of a physiological excavation extending towards the temporal margin of the papilla, whilst the papilla itself, as a rule, is surrounded by a semilunar atrophy of the choroid. In regard to the treatment of myopia, **M. Metais** has practised the division of the external rectus in a number of myopic patients, the degree of whose myopia varied from ten to twenty diopeters. The results at which he arrived were that the operation effected no improvement in the degree of myopia, but that the progress of the affection was arrested in eight cases out of fourteen, whilst it was rendered less rapid in four, and in two cases it appeared rather to aggravate the symptoms; in both of these, however, there was strong hereditary predisposition, in one case extending over four, and in the other over three generations. In the cases benefited, ordinary work

which was indispensable was resumed. In the discussion which followed the reading of this paper before the Ophthalmological Society of Paris, **M. Martin** insisted on the connection of myopia with spasm of the accommodation. **M. Dor** recommended the constant use of concave glasses, fully neutralising the defect of the eye. **M. Vacher** has, in two cases of high myopia, extracted the lenses, with the result of enabling the patients to gain their own living. **M. Suarez de Mendoza** stated that he had found much benefit from the use of pilocarpine in the treatment of his cases.

22. Treatment of muscular asthenopia.

Dr. H. D. Noyes (*Proceedings of the American Ophthalmological Society*, reported in the *Ophthalmic Review*, September, 1890, p. 274) gave the results of his observations on the use of prisms in cases of muscular asthenopia. Three-fourths of the patients followed some occupation requiring persistent eye-labour, and of these the majority enjoyed good health. The principal symptoms experienced were pain in the eyes, blurring of the vision, inability to follow moving objects, difficulty in keeping the eyes fixed on one point, vertigo and spasm of the accommodation. Sixty-three cases complained of headache on first awaking in the morning. In a very large proportion of the cases the refraction was emmetropic. Insufficiency of the recti interni occurred in seven cases; of the externi in ninety-two cases; and vertical insufficiencies in five cases, for the most part in connection with one of the other forms. The writer was unable to state what should be regarded as the normal or the abnormal relation of abduction to adduction. As the result of the treatment, seventy-four cases were quite relieved, seven experienced moderate and six slight improvement; thirteen got no relief. The prisms employed in the greater number of cases had a total strength of not over three degrees. In thirty-eight cases tenotomy would have been admissible or advisable. It was resorted to in three cases.

DISEASES OF THE EAR.

BY GEORGE P. FIELD, M.R.C.S.,

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1. Otitis externa.

Miot and Baratoux (*Rev. Gén. de Clin. et de Thérapeut.*, Jan., 1890) recommend the following lotions, applied by means of a small aural syringe, in acute eczematous conditions of the meatus, with excessive secretion, viz., bicarbonate of soda 1 in 200, boracic acid 1 in 35, and corrosive sublimate 1 in 200, of distilled water.

Laccarret (*Journ. de Méd. de Bordeaux*, May, 1890) calls attention to the fact that furuncles sometimes follow the removal of wax, and recommends that syringing for cerumen should be performed with antiseptic precautions.

2. Foreign bodies.

Ward Cousins (*Brit. Med. Journ.*, Sept. 20 and 27, 1890) has figured and described a small double-loop snare for removing foreign bodies from the meatus or tympanum.

Corradi (*Ann. Univ. Med. Sciences*, 1890) recommends that the ear be syringed with oil instead of water, as foreign bodies are less likely to swell by absorption when oil is used.

Cazzolini (*Annales des Maladies de l'Oreille, du Larynx, du Nez, et du Pharynx*, March, 1890) points out the advantages of aspiration when other means fail. The ordinary aural syringe was employed as an extemporised aspirator.

[Siegle's pneumatic speculum has occasionally served the same purpose in my hands. Aspiration is of very limited utility in the extraction of foreign bodies.]

3. On antiseptic inflation of the middle ear.

Walb (*Naturforscher Versammlung*, Heidelberg, 1889) draws attention to the occasional danger of inflating unfiltered air into the tympanum by Politzer's method, or through the catheter, on account of the introduction of micro-organisms capable of converting an ordinary catarrhal condition into a suppurative one.

[The danger is probably not a very real or common one, and

can be avoided by filtering through menthol cotton-wool, introduced into Keene's form of bag or Bronner's capsule.]

4. On inflation of the middle ear through the Eustachian tube.

In a paper on this subject (*Proceedings of the British Medical Association, Journal*, Sept. 20, 1890), Donald Stewart, speaking of the relative value of the various methods of tympanic inflation, said that of Valsalva's he would only say that its disadvantages were so great, that every time it was recommended the dangers accompanying and following its use should be fully explained to the patient. He admitted the necessity of the catheter in stricture of the tube when bougies were required, in one-sided deafness, in intra-tympanic injection, in old people where the rigidity (paresis) of the tubal muscles did not aid Politzer's method, and, lastly, where the catheter was essential for purposes of diagnosis. Excluding the above instances, Dr. Stewart has satisfied himself that Politzer's method of inflation was not only easier, but more efficacious than the catheter for ordinary inflation.

5. On the use of the palate-hook in aural diagnosis and treatment, especially in post-nasal catheterisation.

Baber (*Brit. Med. Journ.*, June, 1890) again recommends the use of White's self-retaining palate-hook in the local treatment of the post-nasal region. He has found it particularly useful in post-nasal catheterisation through the mouth when a palate retractor of some sort is absolutely necessary. Baber also describes a simpler form of catheter than those hitherto employed for this purpose. He has also had White's palate-hook fitted with an electric incandescent lamp. William Hill, who has used White's instrument recently in Mr. Field's clinic at St. Mary's Hospital, finds it very easy of application, and most useful as a protector and retractor of the palate in the removal of adenoid vegetations, under anæsthesia, with the forceps.

6. Intra-nasal treatment in vertigo.

L. Browne (*Brit. Med. Journ.*, September 20, 1890), in a discussion at Birmingham on intra-nasal in relation to aural affections, stated that he did *not* think intra-nasal treatment was of service in cases of auditory vertigo; Grant and Hovell, however, considered it useful occasionally, whilst Macnaughton Jones and Hill had had no very encouraging experience.

7. Forcible nasal dilation.

This method of treatment, introduced by Hewetson (*Brit. Med. Journal*, September, 1890) for the relief of deafness resulting from narrow and obstructed nasal passages, was noticed in the

"Year-Book" for 1890. In a discussion on the subject at the Birmingham meeting of the British Medical Association, Hill showed an improved dilator, and Hewetson, L. Browne, Spicer, Orwin, Casselbury, of Chicago, and Roberts, of Philadelphia, spoke of the value of forcible dilation in some instances.

[Marked nasal obstruction can undoubtedly be relieved by dilation; but unless Politzer's inflation relieves the concomitant deafness before operation, a very guarded prognosis should be given as to the benefit likely to accrue from dilation.]

8. Massage of the membranes and ossicles in chronic middle-ear catarrh.

Bronner, of Bradford (Paper read before the Leeds and West Riding Med. Chir. Society, *Brit. Med. Journ.*, May 24, 1890), has lately reported his experience with Siegle's pneumatic apparatus, exhausted by means of Delstanche's little air-pump, and with Lucae's pressure probe in middle-ear catarrh (non-suppurative), when ordinary treatment, assisted by Politzer's method of inflation and catheterisation, has failed. He employs this method, which is essentially one of *massage*, only in cases where Rinné's test is *negative*. Out of 64 cases in one case the deafness became decidedly worse, in 43 cases there was no, or very slight, improvement, and in 20 cases there was well-marked improvement. In three cases of tinnitus the pressure probe gave decided relief, and in one case the noises stopped altogether.

9. Artificial membranes.

Katz (*Deutsche medicinische Wochenschrift*, July 11, 1889) advocates celluloid "drums." They consist of discs of this material with a roll or wick of cotton attached to the centre as a handle.

Ward Cousins' antiseptic lint artificial membranes have been spoken favourably of as useful in *suitable* cases by Arbuthnot Lane, Charles Warden, Hovell, Grant, and others. (*Brit. Med. Journal*, September 20, 1890.)

In a leaderette (*Lancet*, September, 1890) the editors call attention to gross frauds practised on the deaf public by unqualified advertising quacks, whose absurd though expensive "drums" are eagerly purchased by persons of all stations in life suffering from defects of hearing.

[Scarcely one patient of every hundred is likely to present conditions suitable for artificial membranes, and in such instances the simple contrivances of lint or cotton wool are now recognised as the safest and most efficacious.]

10. The abuse of syringing.

W. H. B. Stewart, at the Birmingham Meeting of the Brit. Med.

Association, described a line of treatment for chronic middle-ear suppuration, and showed his intra-tympanic syringe, aspirator, and douche, and vulcanite ear-shoot, an account of which has already appeared in the *Brit. Med. Journal* of May 10. He made an emphatic protest against the abuse of the syringe in certain ear-troubles, and the indiscriminate use of stimulating lotions, as drops, which drops, in the majority of cases, more especially those of a subacute character, were intensely irritating. This irritation kept up the inflammatory condition from day to day by the repeated morning and evening drops, producing a condition which, next to total neglect, was most conducive to complications of the most serious intracranial nature. With regard to the abuse of the syringe, which in skilled hands was one of the most useful instruments in certain ear diseases, it was, in the hands of the ordinary patient and his medical adviser, the most dangerous and most abused; for if a patient was deaf, no matter from what cause, the chances were that the first thing done was to thoroughly syringe the ear for wax, force being used to start the obstinate plug. The result of this forcible syringing on a drum-head already inflamed could easily be imagined. Stopping the syringing as well as stopping the irritating drops frequently effected the cure. The best treatment, in Stewart's opinion, for middle-ear suppuration was thoroughly to wash the ear out once daily with the intra-tympanic douche, passing the tube into the tympanic cavity, and using an acidulated perchloride of mercury solution to destroy the micro-organisms that might be disturbed. To save the need of assistance, the solution was kept in a jar on a jointed bracket by the patient's side, and the vulcanite ear-shoot was used to run the fluid away. The ear was then carefully dried and packed with absorbent antiseptic wool. This usually cured in two or three weeks; but in those cases that obstinately resisted, where the discharge was offensive, and the mastoid tender, immediate opening of the mastoid antrum and free drainage were strongly insisted on.

[Stewart's syringe is on the same principle as the intra-tympanic syringes introduced by Politzer, Hartmann, and others.

Many aural surgeons with experience of the intra-tympanic syringe are not so strongly impressed with its value. Moreover, it is not adapted for self-use by the patient, and there are great difficulties in the way of inducing patients to pay daily visits in order to have their ears syringed.]

In the discussion on this paper **Tyson** (Folkestone) spoke of severe cases of suppuration of the middle ear met with principally among poor children of the out-patient department, in whom

ordinary syringing seemed to have little effect ; or, what was more probable, the syringing had been inefficiently done, the discharge had been going on for many months, and the child was in a poorly-nourished condition. Dr. Tyson thought that in the above class of case pure carbolic acid applied on cotton wool on a probe occasionally would result in great improvement, if not cure. He had himself adopted the foregoing method in some cases with success.

Wm. Hill mentioned that in chronic cases, without immediately alarming conditions, the biniodide of mercury was preferable to the perchloride. With regard to the treatment recommended by Dr. Tyson, he deprecated the indiscriminate application of strong acids to the inner wall of the tympanum unless granulations were present. It was important to ascertain the exact anatomical condition and seat of the lesion.

11. Intra-tympanic injections through the Eustachian tube.

Van Millingen, of Constantinople (*Ann. Univ. Med. Sciences*, Section "Otology," 1890), lauds injections up the Eustachian tube by means of suitable apparatus in connection with the catheter in all long-standing cases of suppurative catarrh of the middle ear. He has practised this procedure for twenty years, during which period he has only found it necessary to open the mastoid cells in ten instances.

12. Electrolysis for granulations.

Gruber (*Wiener medicinische Blätter*, viii., 1889) records the results obtained by electrolysis in the treatment of aural granulations and small polypi. The results do not appear to have been very good, and the application is both tedious and painful, so that electrolysis is not likely to supersede ordinary methods.

13. Excision of the membrana tympani and malleus.

Burnett (*Medical News*, Nov. 2, 1889) describes a case of chronic purulent discharge from the middle ear, with deafness, cured by excision of the membrane and malleus, after the ordinary method of treatment had failed. The mode of operating was practically (with the slight modification of using the snare instead of forceps) that adopted by Sexton. Hæmorrhage was controlled by cocaine, and during the operation the inner end of the meatus was frequently mopped out with a 2½ per cent. solution of carbolic acid. The dressing used was cotton wool, medicated by iodoform. The discharge ceased in two weeks, and from being previously totally deaf, hearing distance improved to two feet for

whispered words two months after operation. Eleven weeks after operation ordinary conversation was heard at nine feet.

Reinhard and Ludwig (*Archiv. für Ohrenheilk.*, Feb., 1889) report six cases of chronic suppurative catarrh of the middle ear healed by excision of the necrosed malleus. Four cases are stated to have been "cured," and the two others were benefited.

14. Antiseptic remedies in chronic suppuration.

Macnaughton Jones (*Lancet*, Aug. 3, 1889) gives the following list of remedies in their order of merit according to his experience:—Corrosive sublimate, iodine, salicylic acid, carbolic acid, boracic acid, permanganate of potash, chloroform, and alcohol. For granulations he recommends chloracetic acid and chromic acid.

15. Pathology and therapeutics of the external attic of the tympanic cavity.

Politzer recently made a communication to the Imperial and Royal Society of Physicians of Vienna. This cavity is situated between the body of the malleus and the incus and the external wall of the tympanum, bounded above by the superior ligament of the malleus and downwards by Shrapnel's membrane. Morbid changes develop in this space, partly as primary affections and partly as the results of diffuse diseases of the tympanum. "With regard to treatment in simple perforations of Shrapnel's membrane, the septic matter in the external atticus must first be removed. Simple irrigations are sufficient, as the fluid does not penetrate into the deep parts owing to the narrowness of the opening. For these irrigations Politzer recommends Hartmann's cannula, or an instrument devised by himself, which is supplied with an elastic tube. As to the fluid for irrigation, a 3 per cent. watery solution of resorcin, or, when there is a foul-smelling discharge from the ear, a watery (1 in 2000) solution of sublimate, is recommended. After repeated antiseptic lotions, some drops of a saturated alkaline solution of boric acid (1.05 to 20) or the alcoholic solution of iodol, occasionally also a concentrated solution of nitrate of silver (1 to 10) should be injected into the atticus through the perforated Shrapnel's membrane with an elastic tube. On some occasions the introduction of thin iodoform rods into the suppurating cavity proves highly useful. If continued, severe suppuration engenders a suspicion of caries of the ossicles. Politzer advises a careful examination of the atticus with the sound, as caries of the ossicles or the margo tympanicus can only be detected in that way. He demonstrated a manœuvre devised by himself, by which a soft, flexible sound can be turned around its longitudinal axis, and the cavity of the atticus thus

explored in all directions. As to the extraction of the malleus, which had repeatedly been practised in modern times, Professor Politzer thinks it is indicated only in those cases in which caries of that ossicle can be certainly proved to exist, or when, after extensive inflammation of the membrana tympani, only a useless fragment of the malleus remains behind. With regard to rough parts of the margo tympanicus, suppuration of long standing can thus be cured. Small cholesteatomata can be, by means of elastic cannulas, introduced through Shrapnel's membrane, and a number of troublesome symptoms, such as pain, giddiness, and headache, can thus be at once relieved." (*British Medical Journal*, May, 1890.)

16. Treatment of diseases of the attic.


Hartmann (*Naturforscher Versammlung*, Heidelberg, 1889) recommends free drainage in morbid conditions of the attic by removal of the pars ossea with a special chisel or by opening the mastoid antrum. He points out that the attic in disease is often shut off from the tympanum, and that as the perforation in Shrapnel's membrane is necessarily small these cases often lead to intracranial mischief.

17. The topographical anatomy of the mastoid region.

Birmingham (*Brit. Med. Journ.*, Sept. 20, 1890) has examined one hundred specimens recent and dry. Some of the results may be briefly mentioned:—

(1) The usual accounts of the lateral sinus which describe it as running horizontally outwards and forwards from the occipital protuberance to a point one inch behind the meatus, where it is said to turn down behind the posterior margin of the mastoid process, are shown to be inaccurate; as is the statement, found in most books on the subject, that the transverse fissure (which, of course, corresponds to the line of the lateral sinus) is marked on the surface by the portion of Reid's base-line behind the meatus. The sinus does not run horizontally forwards from the occipital protuberance; on the contrary, it is distinctly arched; from the region of the protuberance it ascends gradually or rapidly above the base line until it reaches a point about one inch and a half behind and nearly three-quarters of an inch above the centre of the bony meatus; here it bends gently or sharply, and runs down in front of the posterior margin of the mastoid process, about half an inch behind the meatus; it turns in to the jugular foramen at a point about one quarter of an inch below the level of the floor of the meatus. Its relation and position vary to a marked degree; these variations are pointed out, and methods given for

avoiding the sinus in all cases. (2) It is shown that the floor of the cranium is usually nearly four-sixteenths of an inch above the roof of the meatus; but here, too, there is considerable variation—the distance sometimes is only one-sixteenth of an inch. (3) Regarding the position of the antrum, this cavity may be always drained by sending a quarter-inch drill straight in, placing the drill at such a point that the margin of the hole which it makes shall lie as near as possible to the posterior margin of the meatus, and immediately beneath—or just up to—a line drawn horizontally backwards through the extreme upper border of the meatus. In a very few cases the drill enters, not the antrum itself, but some of the cells opening directly into it, which will be just as effective as opening the antrum direct. In almost every case the drill used may be one-third of an inch in diameter; but if a larger instrument be used there will be danger, in a considerable number of cases, of opening into either the lateral sinus or cranial cavity. (4) It was found that in about 15 per cent. of cases, if a three-fourth inch trephine were applied at the point indicated by Mr. Barker for trephining in temporo-sphenoidal abscess, the lateral sinus would either be exposed in the opening or would run along its margin. It is suggested that a point half an inch higher should be selected. The site selected for trephining in cerebellar disease is safe as regards the lateral sinus; but occasionally the trunk of the occipital artery would be injured where it lies in the groove on the temporal, besides, the bone at this point is thickly covered. A point two inches behind the centre of the meatus, and one inch below the base-line, would give a site more superficial, and safe from sinus and artery. Mr. Wheeler's operation, if certain precautions be taken, will in the majority of cases afford a means of draining the mastoid cells and exploring the brain; but sometimes the antrum cannot be reached through the opening, owing to the low level of the upper surface of the petrosa. Amongst the minor details, a case of solid mastoid with entire absence of antrum is recorded; the varying distance of the lateral sinus from the back of the meatus and from the surface of the skull behind the ear is given. It is pointed out that occasionally the sinus is only one-twelfth of an inch from the surface, and the danger of incautious perforating at this part is dwelt upon. A point is given at which the sinus may always be reached by trephining. The position of parts represented on the upper surface of the petrosa is described, some inaccuracies frequently found in descriptions of this part are pointed out, and some observations upon the relations of the base-line and upon the anatomy of the antrum itself are recorded.



18. The treatment of some cases of suppurative middle-ear disease.

Arbuthnot Lane, M.S., describes a method of treatment which he has for some time adopted in cases of otitis media complicated with adjacent inflammation. This he described in the *Journal*, March 29 and June 28, 1890. Lane calls attention to the fact that a large mastoid antrum is in itself a source of danger. Nearly all the bad cases of intractable suppuration which he has operated on presented this feature. He remarks that the communication between this abnormally large cavity and the tympanum is often very small; and when there is an abundant and foul chronic discharge from the middle ear present, with a history of mastoid pain or tenderness, no other treatment but drainage and, if necessary, the enlargement of the above-mentioned communication, is of the least permanent benefit. Lane points out the dangers of the trephine and the advantages of sharp gouges. An essential feature, moreover, of his treatment is the after-drainage of the cavity by means of *perforated silver tubes*, capped with rubber externally to prevent irritation. The remarkable recovery or improvement in the hearing capacity which in these cases resulted from operative interference led him to adopt the same measures in such uncomplicated cases of chronic otitis media as had resisted milder measures, and seemed suitable. He regarded the operation as being accompanied by a minimum of risk, either to the life of the individual or to the internal ear or facial nerve, in careful hands; and it was always followed by a very considerable return of the hearing capacity, even in cases of complete deafness of long duration. Besides this, there was the removal of subsequent risk of inflammation of the mastoid process, etc. Another important feature was the very rapid recovery which usually took place, the patient suffering but little inconvenience, and not being confined to bed after it.

19. The treatment of pyæmic thrombosis of the lateral sinus secondary to suppurative disease of the ear.

Ballance (*Lancet*, May 17, 1890) has made a very important communication on this subject, based on four cases under his care, two of which were rescued from certain death by brilliant surgery. This is not the place to discuss points of diagnosis; the subject has recently been ably dealt with by Macewen, Barr, Barker, and Ballance; but the diagnosis having been arrived at, Ballance's plan is (after exploring the mastoid region), to open the sinus with Roberts' antiseptic trephine of five-eighths of an inch diameter, the centre of the trephine hole measured from Reid's base-line being

one inch behind and a quarter of an inch above the centre of the bony meatus. If doubt exist as to whether pyæmic thrombosis is present in the sinus, a grooved needle may be inserted. If a septic clot be present, Ballance strongly recommends and performs ligation of the internal jugular vein, lest any portion of it in subsequent manipulation be detached and carried to the lungs. This essential procedure was suggested, though not carried out, by Horsley, in 1886. After ligation of the vein, the sinus can be freely opened and its contents removed and rendered sweet by antiseptic syringing. Diseased portions of the temporal bone must be curetted or removed by appropriate means.

[This operation is the most important advance made in cranio-aural surgery in recent years.]

Arbuthnot Lane (*Brit. Med. Journ.*, June 28, 1890) claims to have been the first to treat septic thrombosis of the lateral sinus by ligation of the internal jugular vein and removal of the septic thrombus, and with success.

20. Pilocarpine injections.

J. Dunlop (*Brit. Med. Journ.*, June 7, 1890) reports a case of mixed middle-ear and labyrinthine disease of long standing and accentuated by an attack of measles two months previously, which was practically cured by this treatment.

[This, apparently, is the first fully reported case where pilocarpine has been tried for *recent* post-exanthematous aural disease, though William Hill, in a paper read before the Harveian Society, "On the Treatment of Aural Complications of Specific Fevers," had previously recommended its cautious adoption in such cases. (*Lancet*, Feb., 1890.)]

Risk (*Brit. Med. Journ.*, July, 1890) reports a case of acquired syphilitic nerve deafness in which a course of pilocarpine injections proved very successful.

21. Pilocarpine in internal ear disease following mumps.

Kosegarten (*Zeitschrift für Ohrenheilkunde*, xx., p. 110) records three bad cases of deafness after mumps in which hearing was completely restored by this treatment. These cases have hitherto only too often resulted in total deafness.

Field (*Brit. Med. Journ.*, April, 1890) records twenty cases, mostly labyrinthine diseases, which were much benefited by pilocarpine injections, and remarks, "One is forced to inquire how these results can be brought about, and a correct appreciation of its *rationale* would doubtless lead us to an understanding of why it is beneficial in some cases and of little avail in others. It is advisable in the first place to inquire into the pathology of laby-

rinthine deafness. The absence of bone conduction would point to some condition which prevents the terminal fibres of the auditory nerve from being acted upon by the acoustic vibrations. With very few exceptions, such as, for instance, in some cases of Menière's disease and in locomotor ataxy, this condition is essentially inflammatory in its origin. Primary inflammation of the labyrinth is exceedingly rare, so far as pathological observation has gone. In one case, recorded by Schwartze, suppuration of the labyrinth, independent of any affection of the middle ear, led to suppurative meningitis. Politzer, too, has recorded a case where, the middle ear being normal, inflammation of the labyrinth caused new bone-formation from the periosteum, which completely filled up the cavity. In by far the majority of cases, however, the labyrinthine disease is secondary, and although a few cases have been reported where inflammation has extended from cerebral meningitis along the sheath of the auditory nerve or through the aqueductus cochleæ to the labyrinth, yet usually the primary seat of the inflammation is the middle ear, which is so often affected in the specific fevers.

"The early stages of this affection as it attacks the labyrinth are evidenced anatomically by congestion, small cell infiltration and sometimes by suppuration and complete destruction of its membrane. The inflammation may spread along the sheath of the auditory nerve and so reach the cranial cavity, but more commonly and fortunately the inflammatory process is limited to the labyrinth itself. Here at times the inflammatory material undergoes further changes. The cavity of the labyrinth becomes filled with a fatty or cheesy mass, containing granular and sometimes calcareous matter, pigment, and crystals of cholesterine; bands of fibrous tissue may stretch from wall to wall, and the bony walls become thickened as the result of the inflammation of their periosteum. The membrane of the labyrinth may be absolutely destroyed, and with it the nerve-endings spread upon it are degenerated and atrophied. More commonly the membrane is thickened by overgrowth of fibrous tissue, and this presses on the nerve endings and paralyses their action. The accumulation of these inflammatory products in so confined a space necessarily causes more or less disappearance of the perilymph and endolymph. The course of the inflammation, it appears then, is that which an inflammation may pursue in other parts, its results being dependent upon its severity and upon the delicacy and complexity of the organ in which it has occurred. Nor would it appear that the cause of the inflammation has much influence upon its pathological results. Syphilitic affections of the labyrinth, in which Politzer

first found the pilocarpine treatment of benefit, cause practically the same pathological appearances, although it may be mentioned that Moos and Steinbrügge have described a case in which a true gumma had formed in the periosteum of the labyrinth.

"Such, then, is the condition which causes labyrinthine deafness, and it can readily be understood that it is not promising to ordinary methods of treatment. Yet it is in many of just such cases that I have found the subcutaneous injection of pilocarpine to give great relief, and in not a few instances to lead to what is for practical purposes a cure. How this is brought about is for the present at least incapable of proof, but the surmise I would venture to put forward, and it would appear to me to be at least plausible, is the following. Referring to Dr. Lauder Brunton's 'Textbook of Pharmacology,' we find that pilocarpine increases all the secretions of the body, except the bile, and this it does by stimulating the secretory nerve-fibres. I notice especially the wax; the secretion of the outer ear is increased by it, and I may mention in passing that in all these cases of labyrinthine deafness wax is usually absent in the ears. It would appear not improbable, therefore, that the secretion of the inner ear should also be promoted by the injections, seeing that the action of all the mucous membranes of the body is stimulated. The softening of the inflammatory accumulations which would result therefrom would greatly facilitate their removal by the absorbents, and even if it did not cause their absolute disappearance, would so far relieve the pressure upon the auditory nerve-endings as to allow of a resumption of their function. If the membrane of the labyrinth had been destroyed entirely no secretion could take place. Again, no improvement could be expected from such treatment if bony hypertrophy had occurred. We know that in peripheral neuritis, as it occurs in other parts of the body, recovery of the function of the nerve may take place even after a considerable lapse of time; and where the auditory nerve-endings are functionally hindered by the pressure of surrounding exudation, it may well be that improvement may follow from the removal of the exudation. Where, however, pronounced atrophy of the nerve tissue has established itself—and this has been found in the labyrinthine deafness which is the result of locomotor ataxy, as well as in that of inflammatory origin—no treatment can be of any avail. We have no means at present by which we can judge of the presence of these unfavourable conditions, and I think it probable that to this cause may be attributed some of the abortive results of the pilocarpine injections. In a large number of instances, however, the results obtained have been most gratifying, and I venture,

therefore, to record my experience of what I believe to be a valuable method of treatment."

In middle-ear disease pathological observations have shown that fibrous adhesions, cicatricial contraction of the mucous membrane, and ankylosis of the ossicles are the most frequent results of inflammation, and these are not so likely to be benefited by the secretory action of the pilocarpine as in the accumulation of inflammatory *débris*, which is often the cause of labyrinthine deafness.

22. Section of Otology.

International Medical Congress, Berlin, 1890. Report of the chief discussions relating to treatment by the English secretary, Dr. Bronner:—

The first discussion, "The Relations of Micro-organisms to the Diseases of the Middle Ear," was opened by Moos and Zaufal.

Moos stated that the micro-organisms found their way into the middle ear direct through the Eustachian tube, or through the lymphatics, or through the fissura petrosa-squamosa. The changes set up by the organisms could be: firstly an abnormal mucous secretion (in these cases paracentesis of the drum-head was called for); or the changes might be more of a plastic nature, as in diphtheria; or there might be profuse secretion of pus. In these cases streptococcus was nearly always to be found. In all cases in which many streptococci were found the changes were of a distinctly progressive nature.

In the discussion which ensued, Politzer asserted that if "Poltzer's bag" were used, the micro-organisms in the Eustachian tube could not be blown into the middle ear, whereas this did occur if the Eustachian catheter were used. Gruber, Jacobson, and others denied the former assertion.

On Tuesday (Delstanche in the chair), Kuhn and Bezold opened a discussion on "Cholesteatoma." Kuhn showed a large cholesteatoma which he had recently removed. The history of the case was very interesting, the symptoms being apparently quite acute. Kuhn also gave a detailed *résumé* of the recent literature. Lucae, Zaufal, Barth, and others took part in the discussion. Lucae urged that if there were even the slightest symptoms of cholesteatoma the mastoid antrum ought to be opened at once, and the tumour removed.

Hessler spoke on the advantages of opening the mastoid antrum from the external meatus. He prefers, in most cases, the operation as performed by Schwartze. In some cases he adopts the suggestion of Bergmann, and removes also the *pars ossea* of the *membrana tympani*.

Kretschmann read a paper on the after-treatment of cases of mastoid operation. He mostly uses a tampon of gauze, and does not like the lead nail. The dressing is changed every two to four days.

Staake spoke on the indications for the excision of the malleus and incus. The operation is of no use in cases of sclerosis. In order to get a better view of the field of operation, Staake makes an incision behind the external ear, draws this forward, and then cuts through the wall of the external meatus, just above the membrana tympani, and pulls it out of the meatus. After removing the ossicula he sews the detached parts together again. He advocates the removal of the ossicula in the following cases : (1) To improve the hearing in cases of adhesions of the membrana tympani to the tympanum, and in cases of closure of the Eustachian tube ; (2) in cases of affections of the attic ; (3) when the malleus is diseased ; (4) in cases of cholesteatoma of the tympanum.

Sexton advocates the removal of the malleus : (1) In cases of deafness due to chronic catarrh, including sclerosis ; (2) noises in the head ; (3) vertigo ; (4) chronic otorrhœa. He showed the instruments he uses.

On Wednesday (Poltzer in the chair) **Steinbrügge** read a paper on the "Pathology of the Internal Ear." In the discussion **Habermann** recorded a case of pernicious anæmia which in hæmorrhages was found in the internal ear. **Poltzer** spoke on the frequent occurrence of pigment in the cochlea, especially in cases of sclerosis. It was due, he thought, to congestion and not to hæmorrhage. He also drew attention to the frequency of ossification of the cochlea, and also of the fenestra ovalis and rotunda.

McBride and **Gradenigo** opened a discussion on the diagnosis, prognosis, and treatment of chronic non-suppurative catarrh of the middle ear. McBride divides the cases into those with well-marked catarrhal symptoms (often due to diseases of the nose) and those with no well-marked catarrhal symptoms (hereditary or rheumatic). He is very much against all unnecessary and energetic treatment of the nose or ear.

Kessel opened a discussion on "Tenotomy of the Tensor Tympani Muscle." He advocates the operation : (1) in cases of paralysis of the stapedius muscle ; (2) spasm of the tensor tympani ; (3) in cases of small oval perforation of the membrana tympani near the light spot. A spirited discussion ensued, in which **Magnus**, **Zaufal**, **Trautmann**, **Steinbrügge**, and others, took part.

On Wednesday afternoon a large number of macroscopic and

microscopic specimens were shown by Steinbrügge, Kirchner, Katz, Politzer, Trautmann, and others. Politzer showed some splendid chalk drawings of cases of beginning cholesteatoma, and of ossification of the fenestra rotunda and ovalis, so frequently found in deaf-mutes.

On Thursday (Gruber in the chair) Schwabach and Magnus spoke on the methods of testing and classifying deafness. Schwabach recorded his researches with tuning-forks. He found that the methods of Rinne and Weber are not at all reliable, and are perfectly useless in the diagnosis between diseases of the middle and internal ear. The most reliable methods seem to be those of testing by bone conduction, with high and deep tuning-forks.

Magnus recommends the method suggested by Wolfe, to use certain words and short sentences in the different tones of voice.

Jacobson and Bürkner spoke on statistics of ear diseases.

Uchermann and Holger gave some interesting statistics of deaf-mutism in Norway and Denmark.

Politzer showed some Eustachian catheters with oval ends. He thinks that they fit into the Eustachian orifice much more readily than the ordinary round ends.

On Friday (Zaufal in the chair) Gurje read a paper on "How does the nasal douche give rise to inflammation of the middle ear?" He thinks that this only occurs: (1) when there is some obstruction in the nares; (2) when the nasal end of the douche is so large as to completely block up the nostril into which it is introduced.

Bezold showed a series of tuning-forks and whistles, with which he can produce sounds of 32 vibrations up to F₅.

Lucas and Schwabach spoke of the great danger to the patient, and also to the surgeon experimenting with tuning-forks of a very low or a very high pitch.

DISEASES OF THE THROAT AND NOSE

BY BARCLAY J. BARON, M.B., C.M. EDIN.,

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WHILST there are no startling novelties in the treatment of diseases of the throat to chronicle during the past year, nevertheless much valuable testing of recent methods has been published, and real progress thereby accomplished. There has been a great deal of literary activity in rhinology, and the classification, diagnosis, and treatment of diseases of the nose and naso-pharynx are every year becoming more accurate, being based on a better knowledge of the anatomy, physiology, and pathology of the organ. The discussion as to the exact pathology of the processes that we call catarrh, ozæna, and hay-fever, the connection of various neuroses due to affections of the nasal and naso-pharyngeal mucosa, and the treatment of the various forms of rhinitis and diseases of the naso-pharyngeal cavity, has never been more actively carried on, and the outcome promises to be of the utmost importance.

BOOKS.

Amongst the books that have appeared, we must notice :—

1. "A Treatise on Diseases of the Nose and Throat," vol. i., by F. H. Bosworth (New York, 1889), quotations from which appear on page 447.
2. "The Throat and Nose and their Diseases" (3rd edition), by Lennox Browne (London, 1890), which is 100 pages longer than the previous editions, the main additions being devoted to the nose.
3. "Asthma considered specially in Relation to Nasal Disease," by Schmiegelow (London, 1890).
4. "A Treatise on Diseases of the Nose and its Accessory Cavities," by Greville Macdonald (London, 1890).
5. "Diseases of the Nose and its Accessory Cavities" (2nd edition), by W. Spencer Watson (London, 1890).

6. "*Recueil Clinique sur les Maladies du Larynx et du Nez*," vol. i., Fasciculi and ii., by E. J. Moure (Paris).

1. The effects of influenza on the throat and nose.

Schäffer (*Deutsch Med. Woch.*, No. 10, 1890) had to perform tracheotomy to relieve sudden dyspnoea due to two abscesses having formed on the upper part of the right vocal cord, and a third one on the right arytenoid cartilage.

Marano (*Archivii Ital. de Laringol.*, May 2, 1890) reports cases of hæmorrhagic laryngitis, pharyngitis, rhinitis, and otitis.

Le Noir and Koch (*Annales des Maladies de l'Oreille*, March, 1890) observed symmetrical ulcerations of the front of the vocal cords, and naso-pharyngeal inflammation, which was so acute as to resemble an erysipelatous condition, with œdema of the uvula, &c.; also paralysis of the soft palate and larynx was noted.

Wolfenden (*Brit. Med. Journ.*, March 8, 1890) records a case of acute œdema of the ary-epiglottic folds as a sequel of influenza.

Frankel (*Deutsch Med. Woch.*, No. 28, 1890) describes a special "Influenza laryngitis," the characteristic, if not pathognomonic, appearance of which is a fibrous infiltration of the middle portion of the vocal cords of white colour, and not due therefore to hyperæmia, to which it gradually gives place; some epithelial desquamation occurs, and the process comes to an end.

Lublinski (*Revue de Laryngol.*, etc., Aug. 1, 1890) reports hæmorrhagic rhinitis and laryngitis, and acute and phlegmonous pharyngitis and tonsillitis, with deposits of false membrane; acute laryngitis was followed by detachment of necrosed superficial epithelium.

[The authors above quoted are only a few out of a great many who have seen throat, nose, and ear troubles, follow or accompany this mysterious disease.—B. J. B.]

TONSILS.

2. Hæmorrhage after removal of the tonsils.

Butler (*New York Medical Journal*, Nov. 2, 1889) had to deal with a case of alarming hæmorrhage after the removal of a tonsil in a girl 14 years of age. Finding that the application of cold, pressure, and astringents, failed to check the bleeding, he adopted the following ingenious and completely successful plan:—The stump of the tonsil was drawn towards the middle line by means of a tenaculum, it was then transfixed with a needle, and a piece of silver wire passed around it. The needle was then removed, the wire cut short, and left in position for two days and no further hæmorrhage occurred.

Levis (*Medical News*, Dec. 8, 1888) in a similar case stopped the bleeding by passing a tenaculum through the base of the tonsil, and giving the instrument a decided twist, it was then left in position for twelve hours.

3. Note on a rapid method of tonsillotomy without hæmorrhage.

Toison (*Journal des Sciences Médicales de Lille*, June 27, 1890) removes the tonsil by means of an ecraseur modified for this especial purpose by himself, having previously fixed the gland with a hook.

4. The treatment of diseased tonsils, when unattended with hypertrophy.

Boe (*Trans. of the American Laryng. Assoc.*, 1889) advises ablation of the diseased glands with the knife. The tonsil is grasped with a double tenaculum, drawn forward from its bed, and a portion of it removed. It is inadvisable to remove the whole gland at one cut, as the danger of wounding the pillars of the fauces, to which it is frequently found to be adherent, is thereby incurred.

[I find the galvano cautery very satisfactory in the treatment of these cases, but in a small minority, in which it and mineral caustics fail to cure, the above method is worth a trial.—B. J. B.]

5. Naphthol in tonsillitis.

Esault (*Brit. Med. Journ.*, May 3, 1890) finds that naphthol prevents suppuration and sloughing when the tonsil is acutely inflamed and when apparently no other treatment would have been able to prevent the occurrence of one or other of these terminations to the inflammation.

6. Tonsillitis and its relations to rheumatism. (*Brit. Med. Journ.*, Sept. 14, 1889).

This was the subject of a discussion at the Leeds meeting, 1889.

Haig-Brown stated that, as the result of careful study, out of 119 cases of tonsillitis, there was some rheumatic suggestion in 76 instances, and of these 38 had previously had rheumatism; 28 in rheumatoid pains accompanied the attack of tonsillitis; 10 had parents who had had rheumatism, but the patients themselves had not had it. He drew attention to the persistent aptitude of the disease to recur, its frequent alternations, and the sour-smelling perspirations and pain which accompany both diseases. He also alluded to the fact that heart troubles are apt to occur in tonsillitis, and quoted Osler, who believes that endocarditis may

accompany it. Haig Brown does not believe that salicylates really influence the course of the disease.

Garrod's conclusions are :—

1. Some evidence pointing to a rheumatic origin is obtainable in one-third of all cases of tonsillitis and pharyngitis.
2. True articular pains occurring in association with sore throat afford evidence of rheumatic origin.
3. When sore throat is the leading feature of the attack, there is comparatively little tendency to affections of the heart.

Lennox Browne adheres to what he said eighteen years ago, viz. : that a gouty rheumatic diathesis is a very important etiological factor in the majority of patients subject to recurrent tonsillitis. His treatment is salicylates, Leiter's cold coil to the throat, and avoidance of early puncturing or scarifying of the inflamed tonsil.

Hill, in a pamphlet entitled "Tonsillitis in rheumatic states," also associates these two conditions intimately.

7. Chronic rheumatic sore throat.

Ingals Fletcher (*The Journal of Laryngology and Rhinology*, April, 1890) says that the essential points in the diagnosis of chronic rheumatic sore throat are sensations of pain which usually change when the weather changes, a rheumatic diathesis, and absence of physical signs. He recommends salol and extract of *phytolacca* for internal treatment.

Thorner (*Trans. of the Ohio State Med. Soc.*, 1889) says that local treatment alone will not cure this condition, but salol or salicylates in conjunction with a pigment composed of—

Morphine sulph.	...	...	...	...	grs. iv.
Acid. carbolic	}	...	...	...	aa grs. xxx.
Acid. tannic					
Glycerine	}	...	...	...	aa 3iv.
Aq.					

along with counter-irritants to the skin over any spots that are painful are very valuable.

[I am a firm believer in the intimate connection between rheumatism and some throat troubles, and in addition to local treatment I find the administration of salicylates of great value. I would suggest that the condition of the heart ought always to be investigated in cases of throat inflammation occurring in rheumatic patients.—B. J. B.]

8. Oesophageal spasm due to hypertrophy of the lingual tonsil.

Joel (*Revue de Laryngologie, etc.*, Aug. 15, 1890) reports cases in which this symptom was found to be due to growths at the

base of the tongue, and was removed by cocainisation, followed by destruction of the hypertrophied tissue by means of the galvano cautery.

[I have seen one marked case in which this hypertrophy almost completely prevented swallowing by causing spasm, which was cured by the galvano cautery, after mineral caustics and astringents had been tried and failed.—B. J. B.]

PHARYNX.

9. On a method of treatment of granular angina by "grattage" and iodised applications after local anaesthesia.

Buault's (*Archives de Laryngologie*, August, 1889) method is as follows:—After cocainising the pharynx, he rubs it vigorously with a brush (the hairs of which are cut short near the handle to make it hard) dipped in a 10 per cent. solution of iodine and iodide of potash in distilled water. A certain amount of bleeding results, after expectorating the blood a softer brush is used for further friction. After four to six days, when inflammatory reaction has subsided, this proceeding is repeated, and these two sittings are usually sufficient to effect a cure.

10. Salol in acute pharyngitis.

Gouguenheim (*Annales des Maladies de l'Oreille, etc.*, Sept., 1889) reports 22 cases of acute pharyngitis rapidly cured by large doses of salol, supplemented by boric acid gargles and milk diet.

11. Treatment of diphtheria.

Daly (*Journal of Laryngology and Rhinology*, Aug. 1890), after four years' trial of the calomel treatment, during which time he has extensively used it, believes it to be far the best.

To a child three or four years old he gives two to five grains of undiluted calomel every one to three hours until free catharsis follows. When the stools contain gelatinous masses of green bile, the intervals between the same doses may be lengthened, but three such stools daily must be obtained.

Sahlb (*Brit. Med. Journ.*, Oct. 19, 1889) recommends $\frac{1}{4}$ to $\frac{1}{2}$ gramme of antifebrin three times a day in cases of diphtheria, and in scarlatinal and other forms of sore throat. He only claims for the drug that it is able to subdue painful deglutition, faucial soreness, headache, &c.

Roos (*Finska L. Handl.*, March, 1889) uses a gargle composed of a 2 per cent. solution of creolin.

Kütznetroff (*Russkaia Meditzina*, No. 17, 1890) paints the throat with the following pigment every two to three hours:—

Menthol	...	...	...	...	3.75 grammes.
Spts. vin. rect.	...	...	...	...	q. s. ut. ft. sol.
Naphthalin	...	...	...	...	3.75 grammes.
Dissolved in ol. terebinth.	...	...	...	...	7.50 "
Glycerine	...	...	...	...	7.50 "

Gaucher (*Brit. Med. Journ.*, Nov. 23, 1889) has found that a tampon of cotton wool soaked in the following solution—

Alcohol	...	...	...	...	10 grammes.
Ol. ricini	...	...	...	...	15 "
Ac. carbolic	...	...	...	...	5 "

and pressed frequently on the false membrane, desiccates it and renders its removal easy. After it is removed, the solution need only be used once a day, a boric acid gargle or spray taking its place.

LARYNX.

12. Treatment of laryngeal tuberculosis.

Schnitzler (*Congrès de Laryngologie*, Paris, Sept., 1889) recommends balsam of Peru mixed with elastic collodion as a local application to the ulcers, which, if deep, must be scraped, any excrescences being destroyed by galvano cautery. The drug can be used as an inhalation, spray, or pigment, and menthol or astringents may be combined with it.

He believes that iodoform is very beneficial, but does not think that lactic acid is capable of curing any ulceration other than catarrhal.

Ossendowsky (*Vratch*, No. 3, 1890) finds that menthol is analgesic, and promotes healing in superficial ulcers, but does not influence deep ones. He begins with 10 per cent. solutions.

Gouguenheim and **Glover** (*Journal of Laryngology and Rhinology*, Sept. and Oct., 1890) treat the indurative and proliferative forms by applying to the larynx with a Beechag's syringe the following solution twice daily for eight or ten days, and then once daily for two or three days:—

I. Menthol	...	...	...	...	20 grammes.
Sweet oil of almonds	...	...	...	...	100 "
II. Creasote	...	...	...	...	10 "
Sweet oil of almonds	...	...	...	...	100 "

The two solutions to be mixed in a water-bath. After this has been done, all growths on the glottis and pedunculated growths wherever situated are removed by cutting forceps; sessile growths or hard ones that are pedunculated are extirpated by a

punch. After this operation, which can be repeated at short intervals, iodoform powder is dusted over the wounded surface, and then the menthol-creasote solution applied for three or four days.

Favitzky (*Journal of Laryngology and Rhinology*, June, 1890) has tried B-naphthol mixed with oil of sweet almonds, 3ss.—3ij. to 3i., in 10 cases. The ulcers were painted several times a week with the solution, but although it had an anæsthetic effect, and cleaned the diseased parts, it was not curative. Creolin was also used without success.

Cadler (*Brit. Med. Journ.*, Feb. 22, 1890) recommends cauterisation with creasote vaseline ($\frac{1}{20}$ and $\frac{1}{10}$) along with astringent and sedative sprays.

Scheinmann (*Berl. Klin. Woch.*, Aug. 18, 1890) is a firm believer in pyoktanine, which is applied by heating a probe and dipping it into the powdered drug, which is then rubbed into the ulcers. It is said to produce no irritation, and to promote healing and cicatrisation, and it can be used after curetting just as lactic acid is applied.

Bresgen (*Deutsch Med. Woch.*, No. 24, 1890) also speaks well of it.

Symonds (*Brit. Med. Journ.*, Sept. 13, 1890) opened a discussion on this important matter at the Birmingham meeting, and thus summarises:—

1. Tubercular disease of the larynx should be treated on the same lines as elsewhere—that is, by destroying it by an irritant, or by removing it by erosion or curettement.

2. That at present lactic acid is our best application.

3. That endolaryngeal methods are sufficient to remove and treat the disease in the majority of cases.

Our objects in operating are:—

1. To relieve the cough and the dysphagia, and so to bring about improvement in the general health, by enabling the patient to swallow.

2. To diminish the liability to pulmonary affection.

3. To produce a more rapid recovery in those cases disposed to a spontaneous cure, much as we do in tubercular disease of joints.

The cases most suitable are:—

1. Those in which there is no evidence of pulmonary disease.

2. Those in which there is severe dysphagia and cough, with existing, but not rapidly advancing pulmonary disease.

3. Those in which the pulmonary disease is early or chronic, as in these the condition of the lung may improve.

Hunter Mackenzie (*Ibid.*) warns us against treating cases of laryngeal tuberculosis in association with *extensive* pulmonary mischief heroically, only soothing treatment being admissible. In those cases occasionally met with, in whom there is not extensive pulmonary disease, and where the laryngoscopic appearances more nearly approximate to those of simple chronic laryngitis, more active treatment is indicated. Warty growths may be removed by forceps or snare, and ulcers cleaned by detergent and other sprays; he entirely disbelieves in any specific action of menthol, iodoform, or lactic acid, their effect on the bacilli being *nil*. He suggests tracheotomy in the slower and more chronic variety, with slight affection of the lungs, in order to ventilate them, and to relieve the larynx from the irritation of coughing.

Batlin (*Ibid.*) prefers frequent iodoform insufflation, combined with general remedies.

Beale, Greville Macdonald, Lennox Browne, and Bronner (*Ibid.*) all speak favourably of the use of lactic acid, with or without previous curettement.

Heryng (*Berl. Klin. Woch.*, Sept. 15 and 22, 1890) related his experience of the surgical and other treatment of laryngeal tuberculosis at the Berlin International Medical Congress.

From 1887 to July 1, 1890, he treated 482 cases which were all examined either for bacilli in the sputum, or for their presence in true tubercular structure in excised pieces. Of these, 37 cases were curetted and 52 had lactic acid applied to superficial ulcers of the true and false cords, to scanty lenticular ulcers of the epiglottis, and also to circumscribed ulceration with granulations of the posterior wall of the larynx. In 15 cases absolute cicatrization took place and remained firm for at least three months.

The 37 curetted cases were of the worst description—*i.e.*, diffusely infiltrated epiglottis, ary-epiglottic folds and posterior laryngeal wall, affections of the cartilages threatening stenosis—and all were associated with serious pulmonary conditions. Cicatrization for varying periods took place in 32 cases, partial healing in the others.

A woman who had undergone curettement four years ago was shown with perfect cicatrization of the parts operated on, and with good voice, and with almost no cough.

Also a pathological specimen was exhibited in which the sharp spoon had been used, and the scarring of formerly infiltrated and ulcerated parts could be well seen, although the patient steadily lost ground and died from the extension of pulmonary tuberculosis.

Particulars of a case in which the pieces of tissue removed from the larynx exhibited true tubercle follicles and bacilli, and in which curettement caused complete cicatrisation, were related. After death from influenza pneumonia, microscopic sections of the cicatrised parts were made, and it was conclusively proved that the scraping had removed the whole of the tuberculous tissue.

Heryng does not like galvano cautery, because the scars remain on the wound a long time, inflammation is set up, and dysphagia and pain are increased. Electrolysis is beneficial in just those cases which need surgical treatment, but the latter is much quicker in its effects than the former, and so is to be preferred. Heryng has collected 14 cases of spontaneous healing of laryngeal tuberculosis out of 1,980 cases, so that the expectant treatment does not commend itself to us. In light cases menthol, inhalations etc. of Peru balsam, and weak solutions of lactic acid, are to be used.

The indications for curettement are :—

1. In circumscribed infiltrations, i.e., sprouting ulceration of the posterior laryngeal wall and recent unilateral infiltration of the epiglottis, the double curette of Krause is very useful.
2. In deep ulceration of the ventricular bands, in which the sharp spoon or Landgraf's instrument is valuable.
3. In sprouting ulcers on the surface or edges of the vocal cords, which sometimes lead to stenosis or polypoid new growths.
4. Lastly, where the process is spreading very quickly with much dysphagia due to inflammatory swelling or ulceration of the epiglottis or of the posterior wall of the larynx, and we have no hope of cure, surgical procedure is indicated, in order to allay pain and discomfort.

Mermod (*Revue Méd. de la Suisse Rom.*, March, 1890) believes that electrolysis, the negative pole being fixed in the diseased tissues, is capable of producing cicatrisation.

[I have quoted thus largely because it appears to me that the last word for some time to come has been spoken on this subject, and it is now fully before the profession.—B. J. B.]

13. The treatment of papillomata of the larynx by means of the curette.

Massei (*Journal of Laryngology and Rhinology*, Feb., 1889) recommends the curette for removing growths from the vocal cords and subglottic region, especially where they are multiple and on the free edges of the cords. He prefers Heryng's curettes, and believes that owing to the removal of a piece of the tissue from

which the tumour originates, recurrence is not so likely to take place as after other operative measures.

[Multiple growths on the free edge of the vocal cords can usually be treated by rubbing them off by means of a sponge or brush.—B. J. B.]

14. Case of papilloma of the larynx cured by intubation.

Baldwin (*Medical Record*, March 8, 1890) got rid of a very large growth in the larynx by means of the pressure exerted by an intubation tube. He was able to reduce the size of laryngeal tuberculous growths in the same way.

15. The question of the transformation of benign laryngeal growths into malignant, especially in consequence of intra-laryngeal operations.

Semon (*Internat. Centralblatt für Laryngologie, etc.*, 1889) conducted a collective investigation on this important matter, and reports 10,747 benign growths, 4,190 of which were papillomata, of which 612 were certified by microscopic examination.

In 8,216 cases (3,382 papillomata) the growths were removed by intra-laryngeal operation, with 480 recurrences of the papillomata. Out of the whole number of cases (10,747) that were at first benign, 45 became malignant whilst under observation, and of these 33 after intra-laryngeal operation.

Degeneration occurred in 12 instances out of 2,531 benign growths, on which no operation had been performed, so that the percentage of transformation was actually greater in the cases that were not interfered with intra-laryngeally than in those on which operations were carried out. We have no need, then, whatever to be deterred from operating by entertaining the idea of risk of changing the pathological character of a laryngeal growth by endo-laryngeal operative measures in view of the above investigation.

[I carefully watched one of the cases of transformation, and regard the investigation as most complete, and one that sets this matter for ever at rest, as it shows that there is practically no danger of causing degeneration by operation.—B. J. B.]

16. On radical operations for the cure of intrinsic carcinoma of the larynx.

Butlin (*Brit. Med. Journ.*, Aug. 23, 1890) read a paper dealing with 102 operations performed by operators in all parts of the world, at the Berlin International Medical Congress.

The operations, which were mostly undertaken for *intrinsic*

cancer, and the number of deaths due to the operation, are thus classified :—

Thyrotomy	28	Deaths due to operation	3
Partial excision of larynx	23	" " "	7
Total excision of larynx ...	51	" " "	16
<hr/>		<hr/>	
Operations	102	Deaths due to operation	26

Analysis of the causes of these 26 deaths :—

Accident	1
Secondary hæmorrhage	1
Paralysis of the heart	2
Exhaustion	3
Pneumonia	6
Pleurisy	1
Septic poisoning	9
Not ascertained	3
<hr/>	
	26

The excessive mortality lies in the special causes of death which are associated with these operations, viz., affection of the lungs (*Schluckpneumonie*) and septic poisoning. These special causes were as fatal during the decade 1880 to 1890 as in 1870 to 1880, and the deaths occurred with equal frequency where tampons were used, where various antiseptics were relied on, where tracheotomy tubes were worn for many days, and where they were dispensed with almost from the first, and also whether the patients were fed through an œsophageal tube or not.

Butlin is strongly disposed to treat the majority of his patients in future without tracheotomy tube or tampon after the removal of the first tampon within 24 hours of the operation, by frequently dusting the wound with iodoform or iodoform and borax, and by placing over the external wound a piece of iodoform gauze, which can be changed as often as it becomes soiled. In addition he recommends that the patient be laid well over on one side, the head being placed on a single small pillow, so that the wound may be to a certain extent dependent.

Results of the operations, no patient being regarded as *cured* unless he is free from disease at least three years after the last operation :—

28 thyrotomies in 27 patients.

Died of the operation	3
Recurrence of the disease	13
Recovered and well at periods short of 3 years ...	8
Cured	3
<hr/>	
	27

23 partial excisions of the larynx.

Died of the operation	...	...	...	...	...	7
Recurrence of the disease	...	...	...	...	...	6
Recovered and well at periods short of 3 years	...	...	...	...	...	6
Died at the end of 2½ years without recurrence	...	...	...	...	...	1
Cured	...	...	...	...	...	4
						23

51 complete excisions of the larynx.

Died of the operation	...	...	...	...	...	16
Recurrence of the disease	...	...	...	...	...	17
Recovered and well at periods short of 3 years	...	...	...	...	...	4
Died of other non-cancerous causes	...	...	...	...	...	6
Cured	...	...	...	...	...	8
						51

Operations for recurrence are most unpromising, and as a rule *extrinsic* cancer is so malignant as to negative laryngeal operation.

17. Note on the occasional use of solutions of nitrate of silver in chronic laryngitis.

Solis-Cohen (*New York Med. Journ.*, Sept. 14, 1889) recommends painting the vocal cords in obstinate cases of chronic laryngitis in voice users with solutions of nitrate of silver. It is applied once a day for two or three days of the strength of 10 grains to the ounce, then at longer intervals, and lastly the strength of the solution is increased to 40 to 60 grains to the ounce, and applied once a week.

18. Transillumination of the upper air-passages.

Voltolini first used this method. (*Vide "Year-Book,"* 1890, pp. 292, 293.)

Freudenthal, of New York (*Medicin. Monatschrift*, Nov., 1889), has modified Voltolini's apparatus, and it is hoped that with its aid subglottic growths will be well seen, and also that differentiation of lesions of the vocal cords and other structures will be able to be made by noticing the variation in the amount of their translucence.

Heryng (*Berl. Klin. Woch.*, Sept. 2, 1889) directs the light from Blänsdorf's diaphonoscope through a funnel-shaped pasteboard tube, the outer diameter of which is 2½ centimètres. When the lamp is placed in the region of the crico-thyroid membrane the limits of the vocal cords and ventricular bands can be distinctly recognised.

Gottstein (*Deutsch. Med. Woch.*, Oct. 10, 1889) finds the following two points best adapted for the application of Voltolini's lamp:—

1. The region between the upper border of the thyroid cartilage and the hyoid bone, whereby the whole interior of the larynx is beautifully illuminated.

2. The region of the cricoid cartilage, whereby the trachea and vocal cords appear almost blood-red, while the upper part of the larynx is in shadow.

19. The diagnosis of empyema of the antrum of Highmore by electric transparency.

Heryng (*Woch. Berl. Klin.*, Nos. 35 and 36, 1889) indicates a new sign of this disease. He illuminates the mouth with a small electric lamp placed above the tongue, the room in which the examination takes place being darkened. If the antrum is normal two "taches" of very bright red, varying in size with the dimensions of the maxillary cavity, are seen beneath the lower eyelids. If there be a growth or fluid in the cavity the transparency is absent. In ten cases this diagnostic sign was present, and proved to be a great help in the diagnosis.

NOSE AND NASO-PHARYNX.

20. Tupelo as a nasal dilator.

Gleitmann (*New York Med. Journ.*, Nov. 9, 1889) has found that a piece of the wood of the *nyssa aquatica* or tupelo tree of the Southern States is very useful to dilate the nostril in cases where it is narrow, but does not need active interference.

The manner of application is very simple, *e.g.*, after the nostril has been cleansed and cocainised a piece of tupelo of the required size is introduced to the depth desired. It is allowed to remain in the nostril about twenty minutes, and on being removed will be found to have swollen to quadruple its former size. The nostril is then again cleansed and a piece of tinfoil inserted to prevent contact of the parts, and this is worn until the patient's next visit. [*Vide also* "Year-Book" for 1890, p. 294.—B. J. B.]

21. Forcible nasal dilatation.

Hill (*Brit. Med. Journ.*, Sept. 13, 1890) read a paper at the Birmingham meeting in which he advocated Hewetson's treatment of anterior nasal stenosis by forceps. For this purpose he has devised a new instrument, which he claims works more gradually and precisely than Hewetson's, and by placing a blade in each nostril more easily dilates both nostrils without any risk of unnecessarily dislocating the septum. He has employed forcible nasal dilatation in twenty-one cases of marked anterior nasal obstruction with very encouraging results.

Hewetson, Scanes Spicer, Lennox Browne, and Orwin (*ibid.*), all advocated this method of treatment in suitable cases.

22. The importance of preliminary treatment of the nasal mucous membrane before resorting to operation.

Seiler (*Journ. of Laryngology and Rhinology*, August, 1890) advises us to cleanse the nose morning and night with the following :—

Sodæ bicarb. et boracis	āi	3j.
Sodæ benzoat et sodæ salicyl	āi	grs. xx.
Eucalyptol et thymol	āi	grs. x.
Menthol ... ..	...	grs. v.
Ol. gaultheride ... ..	...	m vj.
Alcohol ... ..	...	3ij.
Glycerine ... ..	...	3viijsa.
Aq. ad. ... ..	...	Ō xvj.

The solid ingredients of the above are now made up into compressed pellets, which are very convenient.

23. The treatment of ozæna.

Moore (*La Tribune Médicale*, 1889), after cleansing with copious alkaline douches, uses antiseptic irrigation. Phenic acid, chloral, resorcin, or salicylic acid, being mixed with glycerine, alcohol, and water. He has found creolin of benefit.

R Creolin	1 gramme.
Alcohol pur.	120 grammes.

One teaspoonful to a pint of warm water for the douche, also

R Alum acet. tart.	20 to 40 grammes.
Acid. boric.	80 to 100 grammes.

One teaspoonful to half to one pint of warm water.

In obstinate cases pulverisations of

R Acid. phenic	2 grammes.
Resorcin (cryst.)	3 grammes.
Glycerin.	50 grammes.
Aq.	300 grammes.

are useful.

Later on, astringent solutions replace these, and if the mucous membrane becomes too dry—

R Salol	5 grammes.
Vaseline	150 grammes.

is applied.

After the irrigation the following solution may be used :—

R Camphor	8 grammes.
Tinct. iodi	10 grammes.
Potass. iod.	2 grammes.
Tar	12 grammes.
Alcohol at 90°	100 grammes.
Aq.	250 grammes.

Buault and Berlios (*Archives de Laryngologie*, December, 1889) recommend sulphuric phenol in 10 per cent. solution, or made up as an emulsion, as a direct topical application.

Löwenstein (*Internat. Klin. Rundschau*, No. 20, 1890) in sufflates aristol with good results.

Scanes Spicer (*Brit. Med. Journ.*, Sept. 13, 1890) advocates the insertion into the nasal passages of glyco-gelatine cylinders on hollow oval vulcanite plugs, which can be variously medicated. He claims that physiological nasal respiration goes on whilst they are in position, and owing to the melting of the cylinder being slow the drug that it contains is brought into intimate connection with the mucous membrane. The cylinder cannot slip into the throat, as two of them can be united by a thread in front of the nose, and there is no caking or clogging as is the case when ointments or powders are used. Ozæna, catarrh, hay fever, diphtheria, etc., can thus be treated.

24. The treatment of a common cold, etc.

MacMunn (*Brit. Med. Journ.*, Dec. 14, 1889) suggests the use of the following snuff:—

R	Acid. salicylic	...	...	...	...	...	grs. iv.
	Acid. tannic	...	...	...	...	...	grs. vj.
	Bismuth subnit.	...	...	...	...	...	grs. xc.

25. Neuroses caused by the treatment of the nasal cavity.

Rethi (*Internat. Klin. Rundschau*, Nos. 51 and 52, 1889) remarks that whilst we know that reflex neuroses are occasionally due to nasal disease we must not forget that they may be aggravated or even produced by nasal operations. He then relates particulars of cases in which, owing to the production of cicatrices after application of the galvanic cautery to the septum and turbinated bones, severe hemicrania, sneezing, or attacks of vertigo, ensued, and were only cured when the cicatrices were removed.

[During the past year the usual large number of papers on neuroses dependent on nasal disease having appeared, I thought it worth while to quote the foregoing in order to show that nasal operations may actually set up various symptoms reflexly, which is a somewhat unpleasant argument in favour of Hack's statements.—B. J. B.]

26. Pseudo hay fever, symptoms and treatment.

Bronner (*Lancet*, July 13, 1889) draws a distinction between true hay fever, in which there is a neurotic element, and the above-named condition, which is not a neurosis, but depends

largely on nasal stenosis, from hypertrophic rhinitis, affecting the mucous membrane of the inferior and sometimes that of the middle turbinated bone. It is characterised by violent attacks of sneezing and profuse watery discharge, induced easily by change of temperature or the inhalation of any irritating particles. The treatment is purely local, viz., the application of the galvano cautery to the diseased mucous membrane.

27. A Treatise on Diseases of the Nose and Throat. Vol. i.

Bosworth having published in this book some novel ideas on the physiology of the nose and the pathology and treatment of nasal disease, I venture to quote from it. Writing of the turbinated bodies, he says that he believes it to be an established fact that the so-called erectile bodies are not composed of erectile tissue, and that they never become erect in health or disease. Their sole function, he maintains, is that of serous transudation.

In hypertrophic rhinitis the secretion which has been described as increased is really lessened according to Bosworth, the mucus having become inspissated owing to a deficiency in the serum poured out. In atrophic rhinitis the serum is more or less completely abolished. Again, in naso-pharyngeal catarrh the secretion is said to be notably diminished, owing to which the mucus becomes thick, through not being normally mixed with or dissolved in serous fluid. It therefore remains in the naso-pharyngeal cavity instead of sliding down into the pharynx to lubricate the bolus of food.

Referring to asthma or vasomotor bronchitis, Bosworth says: "I have never known a case of hay fever or asthma to occur in other than an obstructing lesion of the nose or upper air-passages." The lesions are usually hypertrophic rhinitis, polypi, deflected septum, adenoids, or, as in one case, elongated uvula, and cure is said to have resulted when these various troubles were properly treated.

As regards treatment:—in *hypertrophic rhinitis* he prefers chromic acid, lightly applied, to any other caustic or cauterising agent, the object being to modify a diseased process, and not to destroy tissue deeply and thus produce cicatrices.

In *vasomotor rhinitis* or *hay fever* he relies on internal treatment by arsenic, belladonna, and phosphide of zinc, along with alkaline and cocaine sprays, during the exacerbation, dissolving the latter drug in fluid cosmoline or "Ol. Voschano," a substance made from Russian petroleum, any definite nasal mischief being subdued.

Acute naso-pharyngitis is treated by aconitia, gr. $\frac{1}{300}$ given

every hour or two until the pain is relieved, or tingling about the fauces or lips, vertigo and even faintness are produced.

[This is dangerous drugging.—B. J. B.]

Hypertrophy of the pharyngeal tonsil.—The best test for an adenoid growth in the naso-pharynx is: Spray fluid cosmoline through one nostril; if no growth be present, it emerges from the other nostril in a stream nearly as great as it comes from the mouth of the syringe; if there be a growth it is much diminished, or goes altogether into the throat.

[Some of the above statements are novel, and will give rise to controversy; but seeing that they are the result of many years of study on the part of a leading specialist, they are worthy of unprejudiced attention.—B. J. B.]

NASO-PHARYNX.

28. Rhinoscopia posterior: a new method recommended for operations in the naso-pharynx.

Dorn (*Lancet*, Nov. 30, 1889) places the patient in the supine position, with the head hanging well over the edge of a couch, so that the plane of the face is nearly vertical. The soft palate and uvula being fixed by a self-retaining hook, and the tongue depressed, the rhinoscopic image seen in the mirror is remarkably distinct, and any operation can be easily performed, as no blood, saliva, nor portions of tissue removed, can get into the larynx.

29. Further remarks on the self-retaining palate hook, including its use in post-nasal catheterism.

Baber (*Brit. Med. Journ.*, June 28, 1890) finds that post-nasal catheterism of the Eustachian tube is rendered easy if one uses White's palate hook. A beautiful illumination of the naso-pharynx is obtained by attaching an electric lamp to the hook, the wires running in its stem, and also if a mirror be placed behind the lamp the nasal cavities are well seen.

30. Throat affections in children in relation to certain derangements of sleep, temper, spirits, energy, and to intellectual power, and other brain functions.

Spicer (*Brit. Med. Journ.*, Sept. 14, 1889) gives particulars of cases exhibiting the above derangements, which were due to adenoids in the naso-pharynx and hypertrophic rhinitis. The treatment consists in the removal of the growths, and reduction of the hypertrophied mucous membrane of the inferior turbinated bones.

Gaye (*Brit. Med. Journ.*, Sept. 28, 1889) believes in pure nasal "aprosexia," i.e., the inability to fix the attention, and other allied troubles in the cerebral functions. He considers that the

hypertrophied swollen mucous membrane prevents the flow of cerebral lymph through the nasal lymphatics, and products of tissue change are thus incompletely eliminated, and the brain is dull. Removal of adenoid growths by the finger-nail or curette, and the application of solid nitrate of silver to the nose, with a contra-respirator to control nasal respiration during sleep, is the treatment, and is most successful.

Hill (*Ibid.*) treats such cases by scarifying the naso-pharynx to induce free bleeding. This is done in the belief that the various tonsils are lymph-secreting organs, and if the mucous membrane covering these becomes thickened, lymph leakage and diapedesis of leucocytes is prevented. The effect of this is that tension in the convergent lymph systems occurs, and as these form part of an anterior cranio-nasal lymphatic system, an increase in intracranial tension and stagnation in the brain result.

[I have quoted the above, not in the belief that any especially novel treatment is suggested, but because I am convinced that many of these important cases are overlooked from want of examination of the organs concerned. The application of astringents to the nose and naso-pharynx has proved distinctly beneficial in my hands.—B. J. B.]

31. Notes on the choice of anæsthetics, and on position and methods of anæsthetisation in naso-pharyngeal operations.

Silk (*Journal of Laryngology and Rhinology*, May, June, and July, 1889) publishes the results of his experience:—

1. Nitrous oxide ought always to be preferred, if possible; ether may be combined with it.

2. Chloroform has drawbacks special to these operations, and when employed its use in long operations should be limited to the induction of primary narcosis, ether being substituted at as early a stage as possible.

3. As regards the position of the patient:—

(a) *Supine*.—The head may be allowed to hang over the end of the couch, and thus blood be prevented from accumulating in the upper part of the pharynx and larynx.

(b) *Prone*.—There is danger of compressing the chest, and thus preventing the elimination of the anæsthetic; it is, besides this, difficult to keep up anæsthesia with a vapour heavier than air.

(c) *Sitting*.—The chair ought to be high-backed, with arms, and velvet-covered to prevent slipping. This position is only suitable for slight operations, e.g., tonsillotomy, cauterisation, &c. For scraping adenoid growths the body should be bent forward,

the head over a basin, the blood being allowed to flow away by the side of the operator's finger. Believing as the author does that ether, and, in a less degree, nitrous oxide, accentuates any existing nasal obstruction, or converts a partial obstruction into a complete one, he suggests that we should always insert a prop between the teeth before commencing the inhalation. This renders the introduction of a gag easier, and also facilitates seizure of the tongue if needful. If there be oral as well as nasal obstruction from any cause, a good-sized gum-elastic catheter may be passed into the pharynx *via* the nostril, and air thus supplied.

SUMMARY OF THE THERAPEUTICS OF THE YEAR 1889-90,

CHIEFLY IN REFERENCE TO NEW REMEDIES.

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THE year 1890 will ever be memorable for the announcement of Koch's method of treatment of tuberculosis, but its merits cannot be discussed here.

Organic chemists and pharmacologists continue to shower upon us an endless succession of novel compounds with lengthy names; and progress in therapeutics, if proportionate to the number of new remedies annually launched, would indeed be rapid.

Many of these drugs are of complex constitution, and involve considerable technical difficulties in manufacture. They are liable to contain mixtures of different substances, either as isomers, homologues, by-products, or as the result of incomplete purification, and for their purity we are obliged to rely upon the reputation of the firm which produces them. Hence arises, in some cases, a note of uncertainty as to their physiological action and therapeutic applications, *e.g.*, saccharine,* pyrodin, hydronaphthol, etc.

This multiplicity of new drugs unfortunately tends to foster the habit of thoughtlessly running after the last fashionable novelty, to the undeserved neglect of older and better-known friends, and a glance at the advertisements in the medical press would almost lead one to think that the "British Pharmacopœia" is a book not to dispense from but to dispense with."

Not a few of the drugs noticed in the last "Year Book" have already fallen into disuse or have failed to substantiate their claims. Among these may be mentioned anthrarobin, oxy-

* "Pure benzoic sulphinide is entirely soluble in ether; of commercial saccharine only 30 to 40 per cent. is soluble. Fahlberg now prepares a "saccharin puriss." which is 500 times as sweet as sugar."—*Pharm. Journ.*, Dec. 28, 1889.

naphthoic acid, hydroxylamine, thiol, methacetin, pyrodin, and ural.

The abstracts in this volume show that much of the work of the past year, as in the previous two years, has been spent upon the groups antiseptics, antipyretics, analgesics, and hypnotics. Several of these drugs are prized rather for their pain-relieving than for their fever-quelling powers. We are beginning to realise, what might have been foreseen, that there is no ideal antiseptic or hypnotic drug, and that with each we must needs be on our guard against the occurrence of unpleasant and even dangerous effects to which all remedies that act powerfully upon the nervous system and upon metabolism seem to be liable.*

We are also more disposed to recognise the important fact that pyrexia, provided that it does not go too far, not only is no measure of the gravity of the fever-disease, but may even, at least in some instances, be regarded as a necessary and favourable phenomenon, indicating a due defensive reaction upon the part of the organism.

Massage is still in vogue, and a number of communications have been made upon its methods and uses, without, however, adding anything material to our previous knowledge. Much attention has also been paid to the subject of hypnotism and so-called "suggestive therapeutics," but its literature scarcely admits of short abstracts.

Pharmacy has exerted itself to keep pace with the times, and both the profession and the public are indebted to pharmacists for the skill and readiness which they have shown to meet the requirements of prescribers.

NEW BOOKS.

1. "On the Principles and Exact Conditions to be observed in the Artificial Feeding of Infants; the Properties of Artificial Foods, and the Diseases which arise from faults of Diet in Early Life." By **W. B. Cheadle, M.D.** Smith, Elder & Co., 1889.

2. "Hypnotism." By **Albert Moll**, Berlin. The Contemporary Science Series. London: W. Scott, 1890.

3. **Murrell's** "Masso-Therapeutics." 4th edition.

4. **Fischer**: "Die neueren Arzneimittel." 4^{te} Auflage, Berlin.

* A useful summary of the literature which has rapidly accumulated relating to the inconveniences and ill-effects observed to follow the use of some of the newer remedies is compiled by Dr. Falk. His papers, "Ueber Nebenwirkungen und Intoxicationen bei der Anwendung neueren Arzneimittel" (*Therap. Monatsch.*, Feb. to Oct., 1890), deal with Antifebrin, Antipyryn, Betol, Brom-ethyl, Cocain, Exalgin, Methacetin, Phenacetin, Pyrodin, Salol, Thallin.

A useful work of reference upon the characters and tests of recent chemical drugs and active principles.

5. "A Text-Book of Practical Therapeutics." By **H. A. Hare, M.D.**, Philadelphia. Lea Brothers & Co., 1890.

6. "On the Connection between Chemical Constitution and Physiological Action, being an Introduction to Modern Therapeutics." By **T. Lauder Brunton, M.D., F.R.S.** Macmillan & Co.

1. Chloroform, action of.

A notable feature of the year has been the issue of the "Report of the second Hyderabad Chloroform Commission"; along with this should be studied an important "Report on an Experimental Investigation of the action of Chloroform and Ether" by **Professor M'William**, of Aberdeen, and the "Address on Anæsthesia" delivered by **Professor Wood**, of Philadelphia, before the Berlin Congress.

It would not be possible to give in a few words an abstract of recent work upon this most important subject. Suffice it to point out that the first portion of the "Report of the Hyderabad Commission" (*Lancet*, January 18, 1890) deals with the much-disputed question: Is it possible by the inhalation of chloroform to cause sudden stoppage of the heart before the respiration is affected? The result of the investigations carried out upon several hundred animals, dogs and monkeys, was, that in every case where chloroform was pushed, the respiration failed at a time of from one to ten minutes before the heart ceased beating, or, in other words, that chloroform always kills by asphyxia. But **Professor M'William's** report, presented to the Scientific Grants Committee of the British Medical Association (*Brit. Med. Journ.*, 1890), is in sharp conflict with this view. He appears to demonstrate, in a very unequivocal way, that chloroform exerts a direct influence upon the heart, depressing its energy, diminishing its tone, and dilating its chambers. Moreover, such a depressing effect may be brought about by chloroform when given mixed with abundance of air (under 4 per cent. of chloroform vapour), and when the amount of the anæsthetic administered is not sufficient to abolish the conjunctival reflex. The mode of cardiac failure under chloroform is not a sudden arrest of the rhythmic action, but a more or less sudden dilatation and enfeeblement of the organ, causing the rhythmic contraction to be ineffective. Examples are given of cardiac failure, while the respiration went on for many minutes.

Mr. Alexander Wilson, of Manchester, contributes some excellent critical notes upon the "Report of the Hyderabad Commission." His observations throw light upon the apparent contradictions

was noticed, however, that in many of the cases a rapid tolerance of the drug took place. It was repeatedly found that, although a dose of 30, 45, or 60 grains, when administered for the first or second time, produced some hours of tranquil sleep, when the same dose was given on the succeeding night no hypnotic action followed.

Several friends who tested the action of the drug in the insomnia of cerebral cases in asylum practice, found that in large doses—namely, 60 to 100 grains, it was unreliable; in many cases its hypnotic action was not noticeable after the first few doses. No period of excitation was observed to follow the administration of any dose, and, when the drug acted, the onset of sleep was within ten to fifteen minutes.

In point of reliability, urethane compares unfavourably with paraldehyde, which has no specially marked period of toleration, and which in many cases can be taken for months with equally reliable results. This unreliability of urethane seems to have been noticed by various observers, among others by Otto and König.

No hypnotic effect was produced upon healthy subjects by administration of large doses, 40 to 60 grains, in the morning. In large and continued doses it is liable to cause anorexia, and even to induce vomiting. (*British Medical Journal*, Nov. 2, 1889).

Of the compounds, *somnal* and *phenylurethane*, introduced respectively by Radlauer and Giacomini, not enough is known to speak with certainty as to their value.

4. Chloralamide.*

This hypnotic, which was briefly noticed in the "Year-Book" for 1890, has attracted a good deal of attention, and the verdict, upon the whole, is in its favour. A good abstract of the literature is given by Dr. Leech (*Medical Chronicle*, April, June, 1890).

Hallas (*Wiener med. Wochens.*, 1889, 38 and 39) reports that it has no evil influence upon the circulation, and recommends its employment even when the heart is weak and irregular. In doses of 30 to 45 grains it is a useful but not a certain hypnotic, and seldom produces any serious after-effects. Occasionally, headache, giddiness, and nausea, follow its administration.

Alt, on the other hand (*Berl. klin. Woch.*, 1889, 36), found the drug ineffective in twelve out of forty-one cases. He noted,

* A substance, unfortunately named *chloralimide*, has been lately described by Pinner and Fuchs, and is said to be an active antipyretic and analgesic. It is obtained by heating chloral-ammonia.—*Pharm. Journ.*, March 29, 1890, from *Compt. Rendus*, cix. 817.

also, that doses larger than 45 grains were apt to cause even in healthy people dizziness and headache, or a condition like that of intoxication, which, however, does not last long.

The action of chloralamide upon the circulation and respiration has been examined by Langgaard and by V. Mering and Zuntz (*Therap. Monatsh.*, Oct., Dec., 1889, Jan., 1890). The former finds that a distinct decrease in blood-pressure is caused (in rabbits) by the drug, and that it should only be cautiously used in cases of heart disease. But Von Mering and Zuntz dissent from these conclusions, and they point out that since sleep itself depresses the blood-pressure, every hypnotic must to a certain extent lead to this effect. They deny also the lowering effect of chloralamide upon the respiratory centre, observing that the effect of sleep is to decrease the production of carbonic acid, which is the stimulant of the centre. The difference of opinion between these observers is not very serious, and Langgaard allows that in medicinal doses this action of chloralamide will usually be unimportant, but in some pathological conditions might lead to danger. And Robinson (*Deutsche med. Wochens.*, 49, 1889) has several times observed dangerous symptoms, viz., diminished tension and increased frequency of pulse, after the administration of chloralamide.

Umpfenbach has likewise met with unpleasant symptoms of depression after chloralamide, and, in three cases, erythematous eruptions (*Therap. Monatsh.*, Feb., 1890). It is best ordered an hour or more before going to bed, and may be taken as a powder, washed down with milk, water, or coffee, or in solution with syrup, or it may be dissolved in wine or beer.

Dr. Fye-Smith has described acute universal desquamative dermatitis, following two doses of 40 grains each. (*Brit. Med. Journ.*, March 8, 1890.)

Among British practitioners, Dr. Paterson, of Cardiff, Dr. Hale White, and Dr. Strachan, report favourably of the action of chloralamide, and Dr. Strachan states that it resembles in its effects paraldehyde, over which it has the advantage of being devoid of unpleasant smell. (*Lancet*, Feb. 15.)

In the Richmond Asylum, Dublin, Dr. Cope (*Dublin Journ. Med. Science*, Feb., 1890) has found chloralamide to be a valuable hypnotic for the insane. Its solubility in water is 1 in 14. A dose of 25 to 35 grains was sufficient to cause sleep in patients suffering from melancholia and chronic mania, but in cases of acute mania 40 to 50 grains were required. No recognised ill-effects followed the continued use of this drug for eight days. In one case only was its use followed by giddiness and sickness, with

dry, brown tongue. Sphygmographic tracings showed no evidence of lowering of blood-pressure.

5. Sulphonal.

No remedy of recent date has excited more rapid interest than sulphonal since the announcement of its hypnotic qualities by Kast in 1888.* It has been described as a medicine which produces something nearly resembling a natural sleep, with no bad effects, save that it leaves behind it a somnolent tendency easily renewed. Altogether the reports in its favour outweigh those of the opposite tendency.

Naturally it was welcomed by those who treat insanity, and extensive experience has confirmed its utility in this class of practice. An interesting discussion upon the action of sulphonal took place at the Medico-Psychological Society of Paris (reported by Dr. Ireland in *London Med. Recorder*, Dec. 20, 1889). The majority of the speakers, including Drs. Voisin, Febvre, Garnier, Pachoud, and Claret, while acknowledging occasional ill results, testified to the value of sulphonal in mental cases, and it is noticeable that several of them prescribed the drug in very large doses, viz., 4 and 5 grammes. On the other hand, Dr. Marandon de Montyel has either the merit of seeing the dangers of sulphonal, or has been singularly unfortunate in his trials of the drug. He even goes so far as to say that, in doses of 3 to 4 grammes, sulphonal is not a medicine but a poison. It often failed to induce sleep, and in a large number of cases it evoked alarming symptoms in the intellectual functions, and caused disorders of the motor system and of the digestive tract.

Dr. Knoblauch (*Therap. Monatsh.*, Nov., 1889) substantially agrees with Dr. de Montyel. Neither does Dr. Malshni, of Moscow, think highly of sulphonal in asylum practice, and he does not regard it as a very sure or satisfactory hypnotic (*London Med. Recorder*, Nov., 1889). Dr. Knaggs reports a fatal case of sulphonal poisoning. (*Brit. Med. Journ.*, Oct. 25, 1890.) But Dr. Matthes' report of it, from Von Ziemssen's clinic, is more encouraging, and the summary of his observations is:—(1) Sulphonal is a useful hypnotic, though not absolutely certain in its effect. (2) It is preferable to other hypnotics on account of its odourlessness and tastelessness, and its negative action on the vital organs. (3) Undesirable secondary symptoms are infrequent and unimportant. (4) The dose must be varied, according to individual idiosyncrasies. For most patients 1 gramme suffices to produce a hypnotic effect without secondary symptoms. If the latter occur,

* See a valuable "Contribution to the Study of Sulphonal," by Dr. J. Gordon.—*Brit. Med. Journ.*, March 29, 1890.

the dose must be made smaller. (5) It is advisable to give the drug at least an hour before going to bed, as its effect is slow. (6) If pain of non-neuralgic origin or distressing cough is the cause of agrypnia, sulphonal is useless. But in many neuralgic affections it appears to have a very good effect. (*London Med. Recorder*, May 20, 1889.)

Dr. Field remarks that, in America, so much prejudice against chloral has been awakened that physicians felt the need for something to supersede it. Sulphonal is, in his opinion, a first-rate hypnotic. Dr. Field's experience of sulphonal extends over fifteen months, during which he prescribed it in 200 cases. As to dose, he considers that 10 grs. are commonly enough, 15 grs. are often too much. A comforting point about sulphonal is that with frequent use the effective dose may be diminished. It may be laid down as a rule that a patient who does not sleep with 20 grs. will not sleep with any dose. Sulphonal is especially indicated for cases of sleeplessness due to worry or brain disturbance of any kind, and for those cases where chloral and opium are contra-indicated. (*London Med. Recorder*, Jan., 1890.)

Dr. Steiner thinks highly of sulphonal, and relates an interesting case of a patient of his, aged fifty-four, who, within eleven months, took 300 grammes of sulphonal for the relief of sleeplessness. No bad symptoms were at any time noticed, and the patient gained steadily in health and nutrition. (*Therap. Monatsh.*, Oct., 1889.)

In favour of sulphonal speak also Dr. Franz, of Breslau (*Therap. Monatsh.*, März, 1890), and Dr. Rackel.

6. Trional and Tetronal.

A few months since Messrs. Baumann and Kast published (*Zeitsch. für phys. Chemie*, xiv. 52) the results of a number of experiments made upon dogs with compounds allied to sulphonal, from which they drew the conclusions that the hypnotic action of this class is a function of the ethyl groups in the compound and proportionate in the intensity to their number, and that the SO_2 group exercises no influence in this direction. Messrs. Barth and Rumpel have attempted to ascertain how far this statement is confirmed by the effects produced upon human patients by the administration of trional and tetronal, containing three and four ethyl groups respectively, as compared with those produced by sulphonal, which contains two (*Deut. med. Woch.*, August 7, p. 32). In order to make the comparison as close as possible, the experiments with trional and tetronal were made upon patients that had already taken sulphonal with advantage. The results obtained corresponded to

the experience obtained upon dogs only so far as to show that both trional and tetronal possess pronounced hypnotic properties when administered to human beings; but they did not confirm the theory as to their quantitative action, as practically the same doses of the new compounds as of sulphonal were found to be required to produce a certain effect, instead of one-half or two-thirds as expected. At present, Messrs. Barth and Rumpel content themselves with saying that probably the indications for the use of trional and tetronal corresponds with those for the use of sulphonal, but that in certain nervous conditions which are refractory towards sulphonal the other compound might prove more effective. As a hypnotic, tetronal was in fourteen cases superior to sulphonal, in six cases equal, and in four cases inferior. Trional in seventeen cases was superior, in six cases equal, and in seven inferior. No injurious bye-effects were observed in any of the 220 cases in which trional and tetronal were administered. (*Pharm. Journ.*, August 30, 1890).

7. Euphorine.

Dr. Sansoni (*Therap. Monatsh.*, September, 1890) has made a number of observations on the action of euphorine in disease. Professor Giacoso has given the name of euphorine to phenyl-urethan,



a new substance derived from aniline. It is a white, crystalline powder, with faint aromatic odour and slight taste, almost insoluble in water, but quite soluble in weak alcohol. Sansoni first tested the antipyretic effect of euphorine. In fever due to a large number of causes, the temperature fell quickly within an hour; the fall reached its maximum usually in three hours, and lasted for five to seven hours, but sometimes not so long, and at other times longer. The subsequent rise of temperature was usually sudden and accompanied by rigors. Its antipyretic action is often greater in certain individuals than in others, and hence it is advisable to begin with small doses. Doses of 15 to 20 grains in twenty-four hours can generally be taken without bad results. It is best to begin with a dose of 3 grains. In rheumatism 15 to 30 grains daily caused disappearance of the pain, swelling, and fever. In chronic cases the good results were slight. In a few cases euphorine acted well as an analgesic, but on the whole the success must be considered small. In chronic ulcers and in ophthalmia the powder proved itself a better antiseptic than any other which the author

had tried. On the whole, as an antipyretic, antirheumatic, and analgesic, euphorine seems to be inferior to many older remedies of the same nature, and unless future experience bears out the high character given to it by Sansoni as an antipyretic, there is little likelihood of its ever becoming a useful drug.—(Suppl. *Brit. Med. Jour.*, October 18, 1890.)

S. Hypnal.

The incompatibility of antipyrin with chloral hydrate is well known, and by the combination of the two is formed a compound not possessing the properties of either of its constituents. Recently **Herr Reuter** showed that by heating antipyrin with chloral hydrate a crystalline compound could be obtained, which he described as trichloraldehydphenyldimethylpyrazol, and alleged to be without therapeutic value. According, however, to the experience of **Dr. Bardet**, recently communicated to the Société de Thérapeutique (*Nouv. Rem.*, March 24, p. 135), this crystalline compound, which he proposes to call "hypnal," partakes in a marked degree of the properties of both its constituents. Administered in twenty-two cases in doses of one grain (two grains being rarely required) he found hypnal to induce sleep as readily as chloral hydrate, whilst in those instances where the insomnia was caused by pain it seemed to have the same anodyne effect as antipyrin. In addition, spasmodic symptoms, especially cough, appeared to be much abated under its influence. **Dr. Bardet** states that hypnal consists of about 45 per cent. of chloral and 55 per cent. of antipyrin. It has been found by **M. Bonnet** that if concentrated solutions of the two constituents be shaken together a considerable deposit of crystals is formed without passing through the oily stage, and this deposit, by recrystallisation from water, can be obtained in enormous transparent rhombic crystals. If the chloral used be in excess the crystals take the form of prismatic needles. The compound is said to be free from odour or caustic taste. In fact, according to **M. Bonnet**, it is tasteless; but **Dr. Bardet** says that while it is free from the strong taste of chloral hydrate and the bitterness of antipyrin, it has a saline taste, a slight but not disagreeable sensation of chloral becoming perceptible on the tongue after some time. Hypnal is said to dissolve in six to eight times its weight of warm water and melt at 58° to 60°; it is therefore much less soluble than chloral hydrate or antipyrin. (*Pharm. Journ.*, May 3.)

9. Exalgin.

This drug belongs to the same group therapeutically as antipyrin, antifebrin, and phenacetin as an analgesic. It is unsuitable as an antipyretic, because, in full doses, it is apt

to produce untoward symptoms. The favourable reports of **MM. Dujardin-Beaumetz and Bardet** ("Year-Book," 1890) regarding its pain-relieving virtues have been confirmed by others, in England and abroad. **Professor Fraser**, of Edinburgh, speaks highly of it. Of 88 separate administrations of exalgin, in 67 of them pain was relieved. In the groups of "facial neuralgia" and "cardiac angina" 48 out of 52 administrations were successful. Dose, $\frac{1}{2}$ grain to 4 grains in solution in rectified spirit. (*Brit. Med. Journ.*, February 15, 1890.)

Dr. Atkinson regards exalgin as valueless (*Brit. Med. Journ.*, June 14, 1890), but *contra*, **Drs. Herschell and Farrar** produce satisfactory evidence of its value in relieving and curing cases of severe and obstinate pains (*Brit. Med. Journ.*, July 19, 1890). Also, **Drs. J. S. Holden, H. G. Molony, and A. H. Walker**.

Heinz (*Berl. klin. Woch.*, No. 11, 1890) found it efficacious, in 4 to 7 grain doses, in relieving various forms of pain. **Eabow** (*Therap. Monatsh.*, Mai, 1890) extols it in migraine and all forms of headache. He reckons that about $3\frac{1}{2}$ grains of exalgin are equivalent to 15 grains of antipyrin. An obstinate case of trigeminal neuralgia, in which phenacetin had been repeatedly given without effect, yielded to the second dose of $3\frac{1}{2}$ grains of exalgin. In severe aural pain, and in trimetna, he considers 3 to 4 grains of exalgin to act as quickly and surely as a subcutaneous injection of morphine. The drug was less successful in sciatica and muscular rheumatism. In no case did any seriously unpleasant symptom follow its use; sometimes transitory dizziness and noises in the ear.

However, **Drs. Bokenham and Jones** (*Brit. Med. Journ.*, Feb. 8, 1890) record a case in which alarming prostration and cyanosis occurred in a young woman after doses of 2 to 6 grains three times a day, continued for a fortnight. Amongst the bye-effects which have attended it as an analgesic are the following:—Sweating, but this is not common with careful dosing (3 to 6 grains). More frequent is giddiness, which appears in a number of cases in from a quarter to half an hour from the administration; this symptom may amount to a sense of drunkenness, with swimming in the head and noises in the ears. In **Bokenham and Jones's** case there was darkening of vision, and later, delirium and loss of consciousness. Convulsions occurred in **Hepp's** case of phthisis in which 4·5 + 7·5 grains were administered. Disturbances of digestion, epigastric discomfort, nausea and vomiting, are rare. Blood changes have not been witnessed in man, but in animals there has been diminution of oxyhæmoglobin. Of rashes there have been observed only erythematæ. **Prevost** counsels

great caution in using this aniline derivative, which, as such, may easily damage the blood. He, as well as Heins, Dujardin-Beaumetz, and Bardet, considers fever to be a contra-indication. (*Brit. Med. Journ.*, Suppl., Oct. 11, 1890.)

A curious instance of dangerous and distressing symptoms from 3 grains of exalgin is reported by Dr. G. A. Johnston (*Brit. Med. Journ.*, May 3, 1890).

10. Antifebrin.

Messrs. Bokenham and Jones (*British Medical Journal*, Feb. 8, 1890) observed alarming effects, similar to those noted above from exalgin, in a lady, aged 43, after 7 grains of antifebrin. An analogous case is reported by Dr. Haley (*Lond. Med. Rec.*, Dec. 20, 1889; from *Weekly Med. Review*). But that recovery is possible even after excessive doses is illustrated by two recent cases in Germany. A student swallowed 29 grammes, and a woman 30 grammes. Both were intensely cyanosed, but recovered. (*Pharm. Journ.*, June 21, 1890 from *Apoth. Zeitung*.)

An interesting summary of the experience of Russian physicians on the clinical uses of antifebrin will be found in *Lond. Med. Rec.*, July 20, 1889.

11. Antipyrin.

Dr. Schwabe reports a case where violent toxic symptoms were observed in a young woman who had been ordered antipyrin in one gramme doses for severe neuralgic pains (*Apoth. Zeitung*, June 14, p. 322). Three minutes subsequently to taking a dose at noon, after a meal, she complained of peculiar oppressive pain in the back of the head. This was followed quickly by ringing in the ears, giddiness, and a feeling of anxiety; then by tumultuous heart-beat, difficulty of breathing, cold sweat, a strong feeling of heat on the right side of the body and of cold and numbness on the left. In twenty minutes the sight was affected, followed by complete amaurosis, lasting half an hour, when it gradually disappeared. The heart disturbance was excessive, the beats numbering two hundred to the minute during the first hour; the speech also was affected. The symptoms perceptibly decreased during the afternoon and evening, but the patient felt very ill during the next two days, though she eventually recovered without any permanent injury. (*Pharm. Journ.*, June 28.)

Salipyrin, a combination of 57·7 parts of salicylic acid and 42·3 parts of antipyrin, has been tested clinically by Guttman, of Berlin, but his results do not show that it has any advantage over antipyrin. (*Brit. Med. Journ.*, Suppl., Oct. 4, 1890; from *Deutsche med. Woch.*)

12. Phenacetin.

Dr. Collischonn is of opinion that the reason why phenacetin has not won its way as an antirheumatic is because it has been given in too small doses. With larger doses Dr. Collischonn has had most satisfactory results in the treatment of rheumatism, and he has given up the use of salicylic acid on account of its frequent unpleasant after-effects. The author cured himself of a rebellious attack of rheumatism in two days by two doses of 2 grammes of phenacetin, while he had previously taken 120 grms. ($3\frac{1}{2}$ oz.) of salol in the course of three weeks without any effect. He recommends at least a trial of phenacetin in all cases of rheumatism, best administered in four doses of 1 grm. (15 grs.), or two doses of 2 grains. (*Therap. Monatsh.*, März, 1890.)

Several observers, viz., Drs. Katz, Sleimann, and Irwin, strongly recommend phenacetin in whooping cough. It may be prescribed dissolved in glycerin, in doses from $\frac{1}{2}$ to 10 grains. (*Med. Chronicle*, April, 1890; from *Apoth. Zeitung*.)

Methyl-phenacetin, a compound chemically analogous to "exalgin" is said to be an active narcotic. (*Pharm. Journ.*, Aug. 2, 1890.)

13. Aristol.

Some time ago iodol was introduced as a pleasanter substitute for the malodorous iodoform, and now a new competitor appears under the name of aristol. It is dithymoldi-iodide, and is prepared by adding a solution of iodine in iodide of potassium to an alkaline solution of thymol. It contains 45.8 per cent. of iodine. It is a red-brown powder, odourless, unirritating, insoluble in water and glycerin, slightly soluble in alcohol, and freely so in ether and fixed oils. It is decomposed by warmth and by exposure to light.

Eichhoff first tested it therapeutically, and reported very favourably of its action in various skin diseases, viz., eczema, ringworm, ulcers, and lupus. He used a 3 to 10 per cent. ointment made with vaseline. (*Monatsh. für prakt. Dermat.*, 1890.) In a subsequent paper he records his further experience of the drug, and concludes that it is perfectly harmless, and is of great service in psoriasis, eczema, ringworm, and ulcerating syphilis and lupus. (*Med. Chron.*, Aug., 1890, from *Deutsche med. Wochens.*, 1890.)

Although it has been before the profession such a short time, an extensive series of publications upon its use has appeared, and in the main they confirm and add to the favourable results recorded by Eichhoff. An abstract of recent papers is to be found in *Med. Chron.*, July, 1890.

In France, Drs. Brocq and Gaudin found it to favour cicatrization in a most striking manner. In chronic rhinitis and eczema it has proved of much service in the hands of Drs. Hughes and Löwenstein; and in gynecological practice Dr. von Swieticki, of Posen, reports very favourably of it. Likewise from Spain come good reports, from Drs. Buscalla, Buñil, and Estapé. (*Therap. Monatsh.*, Sept., 1890.)

14. Creolin.

This antiseptic and disinfectant seems to be holding its place, and is well spoken of by Dr. Otis (*Boston Medical and Surgical Journal*) and Dr. Lebowicz (*Revue Gén. de Clin. et de Thérap.*, 1889).

But it should be remembered that it has given occasion to several cases of poisoning. One was reported in last "Year-Book." Three additional cases are detailed by Dr. Dinter (*Therap. Monatsh.*, Dec., 1889). In a case under Dr. Ackeren, a man swallowed nearly 9 oz. of creolin, and became unconscious, but ultimately recovered (*Brit. Med. Journ.*, Jan. 11, 1890, from *Berlin. klin. Woch.*).

Dr. Zielewicz, of Posen, has formed a high opinion of the merits of creolin, and has used it for the last two years in his private and hospital practice.

According to Henle's analysis, creolin consists of four groups of compounds, viz., (1) soaps, (2) creolin oil, (3) phenols, (4) pyridines (*Therap. Monatsh.*, April, 1890).

Dr. Schwinz has obtained satisfactory results from creolin in the treatment of diseases of children (*Brit. Med. Journ.*, Nov. 7, 1889).

15. Pyoktanin (πύον, pus; κτείνω, to kill).

Under this fanciful title two varieties of methyl-violet have been lately introduced by Stilling. Several aniline compounds are known to exercise considerable bactericidal properties on gelatine cultures, and it is claimed that these compounds far exceed corrosive sublimate in its action in this direction; whilst they are non-poisonous, odourless, and promote the healing of wounds to which they are applied. "Pyoktaninum cœruleum" is intended chiefly for surgical and "pyoktaninum aureum" for ophthalmological purposes. They are to be sent out in the form of 1 and 2 per cent. dusting powders, ointment, bandages, &c.

Liebreich points out that pyoktanin is not a definite substance, but is a mixture of different compounds, which are collectively known as methyl-violet. Hence satisfactory therapeutical observations cannot be made in such a case. Some aniline colours, e.g., "Victoria blue," have no action upon microbes. Liebreich

considers that methyl-violet is unsuitable for practice. (*Therap. Monatsh.*, Juli., 1890.)

16. Sodium silico-fluoride.

Under the synonym "salufer," this compound was noticed in the "Year-Book" for 1889.

Dr. Croskey considers it an efficient antiseptic, in the strength of 1 grain to the ounce (*Lond. Med. Rec.*, Oct., 1889, from *New York and Philadelphia Times*).

Mr. Bokenham's experiments go to show that the salt delays alcoholic fermentation, but that it is not a true antiseptic. He also considers it too dangerous for internal use. (*Brit. Med. Journ.*, Feb. 15, 1890.)

17. Ouabain is an alkaloid obtained from the root of an East African plant, nearly related to *Carissa Schimperi*. Dr. Gemmell draws attention to its use in the treatment of whooping cough, in which disease he finds it of marked benefit. Dose, $\frac{1}{1000}$ gr. every 3 hours ($\frac{1}{12}$ gr. daily). For children under one year of age, $\frac{1}{2000}$ gr., dissolved in water. Its physiological action has been investigated by MM. Gley and Bondeau. (*Brit. Med. Journ.*, April 26, 1890.)

18. Ichthyol.

Prof. Gadde thinks that ichthyol is entitled to a foremost place among recent drugs, and his observations are quite in accord with those already published by Unna. He especially recommends it in anomalies of the circulation with dilatation of the blood-vessels. (*Therap. Monatsh.*, 1890.)

Dr. Freund, of Strassburg, has a high opinion of its value in the treatment of inflammatory affections of the female sexual organs. (*Berl. klin. Woch.*, 1890.)

19. Diuretin.

Under this name a sodio-salicylic compound of theobromine, corresponding to one of the so-called soluble salts of caffeine, has been introduced as an advantageous diuretic. (*Apoth.-Zeit.*, Dec. 14, p. 1338). According to Dr. Gram, of Copenhagen, theobromine is a diuretic, acting directly upon the kidneys, differing from caffeine in not affecting the central nervous system, and therefore not causing sleeplessness and restlessness. It is said to have produced satisfactory diuresis in cases of renal and heart disease in which digitalis and strophanthus have been without effect. But as the free alkaloid requires about 1600 parts of water for its solution it is not readily absorbed, and gives rise to disturbance of the stomach. Diuretin, on the other hand, is alleged to produce the beneficial effects of theobromine without the unpleasant symptoms. It is described as occurring

as a white powder containing 48 per cent. of theobromine, dissolving with the aid of heat in less than half its weight of water, and remaining in solution after the liquid has cooled. It is administered to the extent of about 6 grammes daily in 1 gramme doses. (*Pharm. Journ.*, Dec. 28, 1889.)

20. **Orexin** (ὄρεξις, appetite).

Penzoldt believes that in this substance the true stomachic has been found, one which has the power of exciting the appetite, aiding digestion, and stimulating absorption of the products of digestion.

The hydrochlorate of orexin (or phenyldihydroquinazoline) occurs under the form of colourless or nearly colourless needles. Orexin is almost insoluble in water, but the hydrochlorate is readily soluble in warm water. It is sharply irritant to the nasal mucous membrane, has a bitter taste, and leaves a tolerably strong burning sensation upon the tongue.

The author employs the following formula:—

Hydrochlorate of orexin	...	...	...	2 grammes.
Extract of gentian	...	...	...	q. s.
Powdered marsh-mallow	...	...	...	q. s.

Made into 20 pills. From 3 to 5 daily. Or it may be given in wafers.

Experiments on thirty-six patients showed that in many cases the drug restored lost appetite. This effect rarely occurred after the first dose; usually it came on after several doses given in the course of a few days. Orexin has a prompt effect in anæmic and cachectic individuals, in patients on whom operations have been performed, in those suffering from phthisis, etc. The drug is of special value in commencing pulmonary tuberculosis, and Dr. Penzoldt in many such cases observed a considerable increase of the weight of the body. No disagreeable after-effects had been observed, except occasional burning along the œsophagus and rare and transitory vomiting. (*Therap. Monatsh.*, Feb., 1890.) Dr. **Martins**, of Breslau, has published the results of a large number of experiments made with a view to determine how far the claims recently put forward on behalf of orexin as an appetite producer have a foundation in fact (*Deutsche med. Woch.*, May 15, p. 427). In twenty cases the pills were administered without informing the patients as to the reason why they were given; in five cases the patients were told that the pills contained something that would improve the appetite, the results being checked by the use of pills containing no orexin, but made up to resemble the orexin pills; in three cases orexin pills and plain pills were administered comparatively without any statement to the patients, and in seven other cases the conditions were varied in different ways. Out of

the twenty-nine cases in which orexin was administered the appetite showed some improvement in five, but not to any considerable extent ; in the other twenty-four cases the orexin did not seem to exercise any influence upon the appetite ; whilst in five cases an improvement in appetite followed the administration of pills although they contained no orexin. Dr. Martins considers therefore that the general results of his experiments have not afforded any distinct and indisputable evidence of the action of orexin in the direction of improving the appetite. (*Pharm. Journ.*, May 31, 1890.)

The remedy is of too recent introduction to allow of a final judgment, and fortunate indeed will it be if the claims made for it be substantiated by wider experience.

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